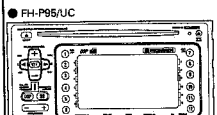
PIONEER
The Art of Entertainment

Service Manual

● FH-P95/UC



ORDER NO.
CRT1596

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

MULTI-CD CONTROL DSP TUNER CD DECK AMPLIFIER

FH-P95 UC
FH-P90 ES

COMPACT disc DIGITAL AUDIO

NOTE:

- **See the service manual DEH-M980/UC (CRT1450) for the CD mechanism description, disassembly and circuit description.**
- **Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.**
- **See the separate manual CX-529 (CRT1507) for the cassette mechanism description.**
- **The cassette mechanism employed in this model is one of 1L mechanism series.**

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K-FFA. JUNE 1994

CHAPTER 1

● **Service Precautions**

1. For pick-up unit (CGY1020) handling, please refer to Fig.1. During replacement, handling precautions shall be taken to prevent an electrostatic discharge (protection by a short pin).
2. During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
3. This device employs an inverter as the power supply for the EL. The inverter has an output voltage reach approximately 300 volts (AC), under no-load condition and about 190 volts (AC), with the EL connected. Utmost cars should be used not to suffer from a possible electric shock, accordingly.
4. Whenever the amplifier may be put into operation, a heat sink should be mounted. ICs and transistors may be damaged if the amplifier should be put into operation without mounting any heat sink.
5. It should be noted that the heat sink is hot during a high-power operation.

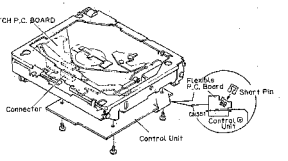


Fig.1

SAFETY INFORMATION(UC MODEL)

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely; you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health & Safety Code, Section 25249.5).
When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with the solder. Also, when soldering do not inhale any smoke or fumes produced.

1. DISASSEMBLY

● Removing the Case

1. Insert and turn a flat screwdriver to remove the case.
2. Raise the case to remove.

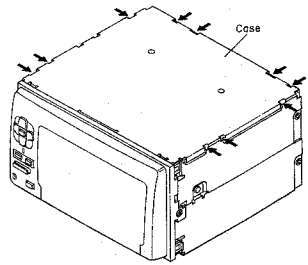


Fig.2

● Removing the Grille Assy

1. Remove the two screws A and three screws B.
2. Disconnect the three connectors.
3. Press the two tabs,and then pull out the grille assy.

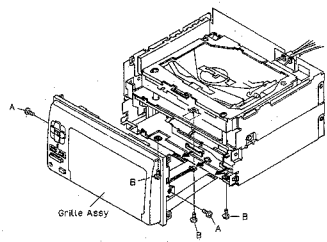


Fig.3

NOTE:

When reassembling the grille assy, use a pair of tweezers of the like to keep holding the flexible P.C.Board so that it will enter under the cassette mechanism module.

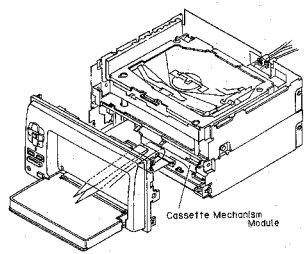


Fig.4

● **Removing the Operation Flap Section**

1. Remove the spring and washer.
2. Remove the four screws.
3. Remove the operation flap section.

NOTE:

Use utmost care to mount the spring while assembling the operation flap section.

*Operation flap = Open and close display

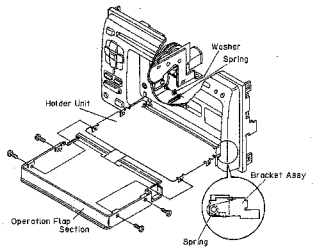


Fig.5

● **Removing the Drive Assy**

1. Remove the two screws.
2. Remove the drive assy.

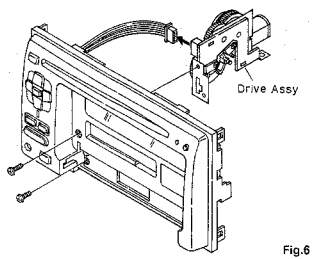


Fig.6

● **Removing the CD Mechanism Module**

1. Remove the four screws.
2. Disconnect the connector.
3. Remove the CD mechanism module.

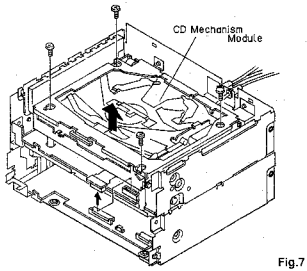


Fig.7

● Removing the Cover, Heat Sink and DSP Amp Assy

1. Disconnect the two connectors.
2. Remove the seven screws A and five screws B.
3. Remove the cover, heat sink and DSP amp assy.

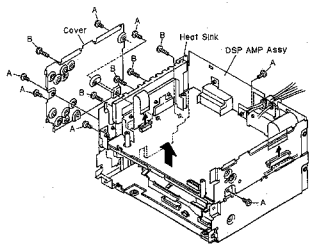


Fig.8

● Removing the DSP Amp Unit

1. Remove the three screws.
2. Unbend the tabs at four locations indicated by arrows until straight.
3. Raise up on DSP amp unit to remove it from chassis unit.

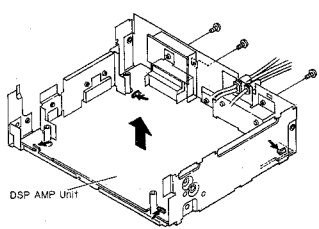


Fig.9

● Removing the Cassette Mechanism Module

1. Remove the four screws.
2. Disconnect the connector.
3. Remove the cassette mechanism module.

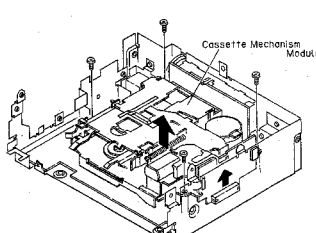


Fig.10

● **Removing the Deck Tuner Unit**

1. Remove the four screws.
2. Unbend the tabs at four locations indicated by arrows until straight.
3. Raise up on deck tuner unit to remove it from chassis unit.

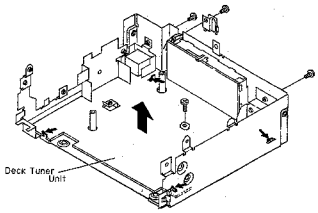


Fig.11

2. ADJUSTMENT

2.1 CD ADJUSTMENT

1) Precautions

- This unit uses a single power supply (+5V) for the regulator. The signal reference potential, therefore, is connected to REFOUT (approx. 2.5V) instead of GND.
  If REFOUT and GND are connected to each other by mistake during adjustments, not only will it be impossible to measure the potential correctly, but the servo will malfunction and a severe shock will be applied to the pick-up. To avoid this, take special note of the following.
  Do not connect the negative probe of the measuring equipment to REFOUT and GND together. It is especially important not to connect the channel 1 negative probe of the oscilloscope to REFOUT with the channel 2 negative probe connected to GND.
  And since the frame of the measuring instrument is usually at the same potential as the negative probe, change the frame of the measuring instrument to floating status.
  If by accident REFOUT comes in contact with GND, immediately switch the regulator or power OFF.
- Always make sure the regulator is OFF when connecting and disconnecting the various filters and wiring required for measurements.
- Before proceeding to further adjustments and measurements after switching regulator ON, let the player run for about one minute to allow the circuits to stabilize.
- Since the protective systems in the unit's software are rendered inoperative in test mode, be very careful to avoid mechanical and / or electrical shocks to the system when making adjustment.
- Disc detection during loading and eject operations is performed by means of a photo transistor in this unit. Consequently, if the inside of the unit is exposed to a strong light source when the outer casing is removed for repairs or adjustment, the following malfunctions may occur.
  *During PLAY, even if the eject button is pressed, the disc will not be ejected and the unit will remain in the PLAY mode.
  *The unit will not load a disc.
  When the unit malfunctions this way, either reposition the light source, move the unit or cover the photo transistor.
- When loading and unloading discs during adjustment procedures, always wait for the disc to be properly clamped or ejected before pressing the another key. Otherwise, there is risk of the actuator being destroyed.
- Turn power off when pressing the button FWD or the button REV key for focus search in the test mode. (Or else lens may stick and the actuator may be damaged.)

2) Test mode

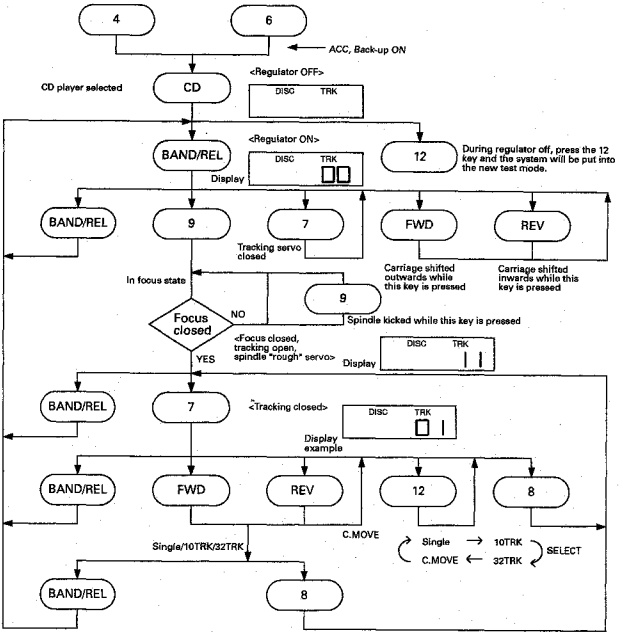
- Test mode is mainly used adjustment of single-CD player and IP-BUS type multi-CD player.
- How to enter into the test mode
  While pressing keys 4 and 6 at a time, press the back-up ON or clear button ON.
- Resetting the test mode
  Press the clear button ON this unit. Subsequently press the clear button ON multi-CD player. Or turn off multi-CD player and this unit back-up and wait for about one minute.

a) Single-CD player, multi-CD player

Key	Function
BAND / REL	Regulator ON / OFF
FWD	FWD kick
REV	REV kick
EJECT	Eject
12	Jump mode
7	Tracking close
8	Tracking open
9	Focus close
CD or remote control CD	CD ON / OFF

- SINGLE / 10TRK / 32TRK will continue to operate even after the key is released. Tracking closed the moment C-MOVE is released.
- JUMP MODE resets to SINGLE as soon as power is off.

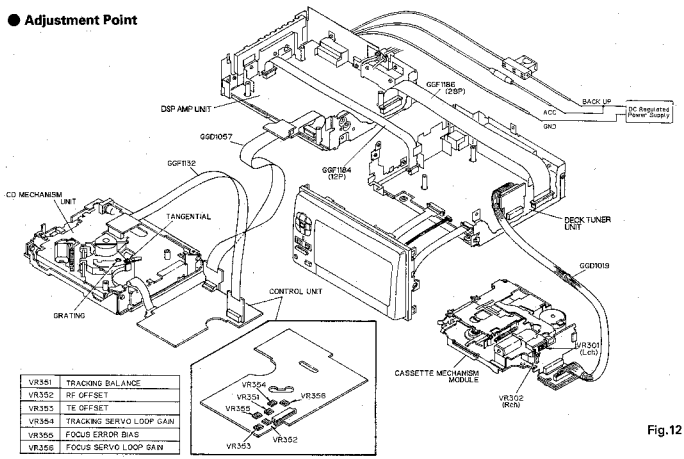
● Flow Chart


4
6
ACC, Back-up ON
<Regulator OFF>
CD player selected
CD
DISC TRK
<Regulator ON>
BAND/REL
DISC TRK
12
During regulator off, press the 12 key and the system will be put into the new test mode.
Display
BAND/REL
9
7
FWD
REV
Tracking servo closed
Carriage shifted outwards while this key is pressed
Carriage shifted inwards while this key is pressed
In focus state
9
Spindle kicked while this key is pressed
Focus closed
NO
<Focus closed, tracking open, spindle "rough" servo>
Display
DISC TRK
YES
BAND/REL
7
<Tracking closed>
DISC TRK
Display example
BAND/REL
FWD
REV
12
8
C.MOVE
Single/10TRK/32TRK
Single → 10TRK
C.MOVE ← 32TRK
SELECT
BAND/REL
8

● **Measuring Equipment and Jigs**

Adjustment	Measuring equipment & jigs
1 Grating Adjustment (Rough adjustment)	Oscilloscope,clock driver,grating adjustment filter (bandpass filter)(GGF-133),AC millivoltmeter TCD-782 (or SONY TYPE4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
2 Tangential Skew Check	Oscilloscope,screwdriver TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
3 Grating Adjustment (Fine adjustment)	Oscilloscope,clock driver,two low-pass filters TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
4 FE Bias Adjustment	Oscilloscope TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
5 RF Offset Adjustment	Oscilloscope TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
6 TE Offset Adjustment-1	DC voltmeter Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
7 Tracking Balance Adjustment-1	Oscilloscope, low-pass filter TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
8 Focus Servo Loop Gain Adjustment	Oscillator,gain adjustment filter (GGF-065), dual meter milli-voltmeter TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
9 Tracking Servo Loop Gain Adjustment	Oscillator,gain adjustment filter (GGF-065), dual meter milli-voltmeter TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
10 TE Offset Adjustment-2	DC voltmeter Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019
11 Tracking Balance Adjustment-2	Oscilloscope, low-pass filter TCD-782 (or SONY TYPE 4) Extension Cable:GGF1132,GGD1057,GGF1184,GGF1186,GGD1019

● Adjustment Point



VR351	TRACKING BALANCE
VR352	RF OFFSET
VR353	TE OFFSET
VR354	TRACKING SERVO LOOP GAIN
VR355	FOCUS ERROR BIAS
VR356	FOCUS SERVO LOOP GAIN

Fig.12

● Test Point

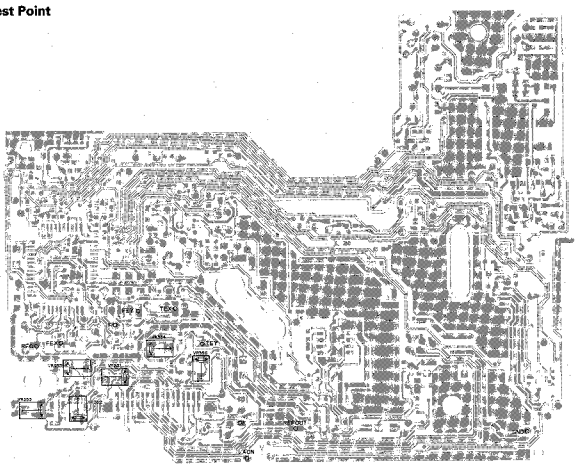
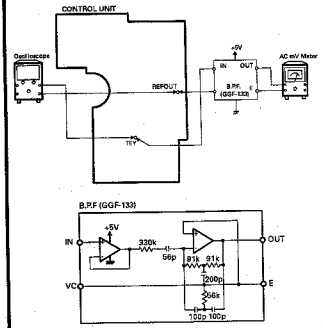


Fig.13

1 Grating Adjustment (Rough adjustment)

·Purpose:
The grating may need adjustment in a replaced pick-up unit.
·Maladjustment symptoms:
No disc playback ; track jumping.

·Measuring equipment / jigs	·Oscilloscope,clock driver,grating adjustment filter (band-pass filter)(GGF-133),AC milli-voltmeter.
·Measuring point	·TEY
·Test disc and setting	·TCD-782 (or SONY TYPE 4) ·Test mode.
·Adjustment position	·Pick-up grating adjustment hole.

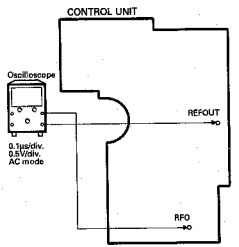


Adjustment Procedure
1.Switch regulator ON in test mode, and load a disc .
2.Use **FWD** or **REV** key as required to bring pick-up at the adjusting hole on control unit (Tune TNO 19). (TYPE 4:TNO 14)
Match with TNO 19 (TYPE 4:TNO 14) when releasing the control unit.
3.Press the **9** key to close focus.
4.While monitoring the TEY filter output by AC milli-voltmeter,turn the grating adjustment hole slowly.The AC voltage increases and decreases while turning the screw.Search for the minimum voltage level. (This corresponds to the position where the grating is on a track, and is referred to as the null point.)
5.Then while monitoring TEY by oscilloscope,turn the driver slowly clockwise from the null point (as seen from under the pick-up) until the first wave form peak amplitude is reached.

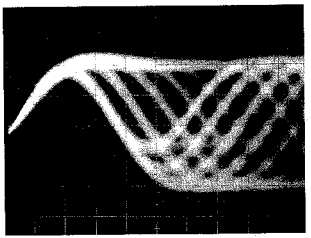
2 Tangential Skew Check

·Purpose:
To check whether tangential skew has been misaligned or not when replacing the pick-up unit.
·Maladjustment symptoms:
No disc playback ; track jumping.

·Measuring equipment / jigs	·Oscilloscope,screwdriver
Measuring point	·RFO
·Test disc and setting	·TCD-782 (or SONY TYPE 4) ·Normal mode
·Adjustment position	·Pick-up tangential adjustment screw

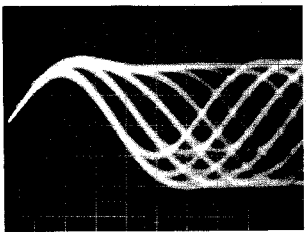


Adjustment Procedure
1.Check that the pick-up position does not differ from that at the same time of grating adjustment. (TCD-782:TNO19, TYPE 4:TNO 14)
2.Turn the tangential adjustment screw to obtain a good RF waveform eye pattern. Turn the adjustment screw both clockwise and counterclockwise to points where the eye pattern deteriorates, and take the mid-way point as the adjustment point. As a general guide, look for an overall clear waveform, and one of the diamond shapes in the eye pattern. The diamond shapes should appear in fine lines at the point of optimum adjustment. Take care not to knock the pick-up with the screwdriver at this stage. (This kind of accident can result in loss of focus.) (See Waveform 1,2)
3.Apply "screw-lock" to the tangential adjustment screw.
4.After adjusting tangential skew,also adjust the grating.



NG

Waveform 1



OK

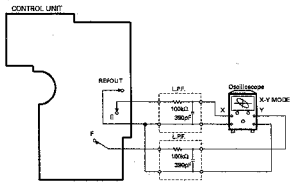
AC Mode
0.5V/div.
0.1μs/div.

Waveform 2

3 Grating Adjustment (Fine adjustment)

- **Purpose:**
  The grating may need adjustment in a replaced pick-up unit.
- **Maladjustment symptoms:**
  No disc playback , track jumping.

· **Measuring equipment / jigs**	· Oscilloscope,clock driver,two low-pass filters
· **Measuring point**	· E LPF output, F LPF output
· **Test disc and setting**	· TCD-782 (or SONY TYPE 4) · Test mode
· **Adjustment position**	· Pick-up grating adjustment hole



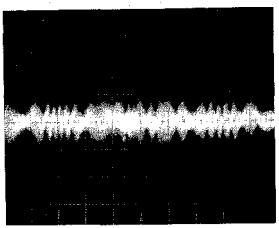
Adjustment Procedure

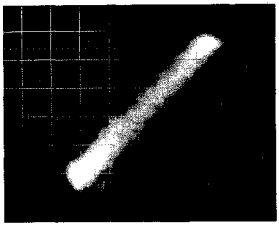
1. Switch regulator ON in test mode,and load a disc.
2. Use **FWD** or **REV** key as required to bring pick-up at the adjusting hole on control unit (Tune TNO 19). (TYPE 4:TNO 14)
   Match with TNO 19 (TYPE 4:TNO 14) when releasing the control unit.
3. Press the **9** key to close focus.
4. With the E low-pass filter output connected to the X axis of the oscilloscope, and the F low-pass filter output connected to the Y axis, apply an input in AC mode and observe the Lissajous figure.
   (See Waveform 3-8)
5. Using the driver,adjust the Lissajous figure to a single line (or as close as possible).
6. Switch regulator OFF and remove the filters.

TEY waveform 5ms/div, 0.5V/div.

Null Point

Lissajous figure (AC input)
Horizontal axis E 20mV/div.
Vertical axis F 20mV/div.

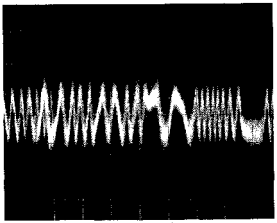


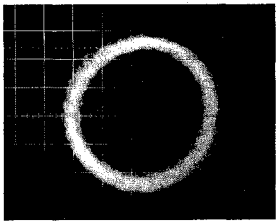


Waveform 3

Waveform 4

"Rough" adjustment

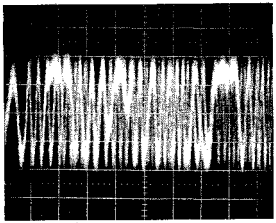


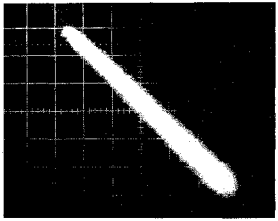


Waveform 5

Waveform 6

Final adjustment





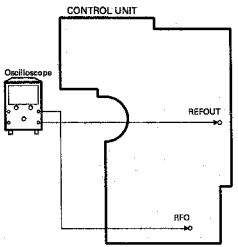
Waveform 7

Waveform 8

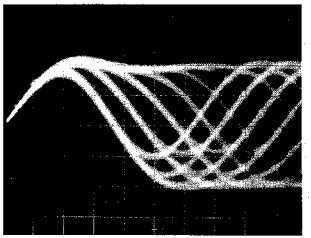
4 FE Bias Adjustment

· **Purpose:**
To adjust the focus servo bias to an optimum value.
· **Maladjustment symptoms:**
Focus closing difficulty,poor playability.

· **Measuring equipment / jigs**	· Oscilloscope
· **Measuring point**	· RFO
· **Test disc and setting**	· TCD-782 (or SONY TYPE 4) · Normal mode
· **Adjustment position**	· VR355(FEB)

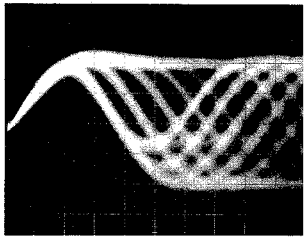


Adjustment Procedure
1.Play in normal mode.
2.Observe RFO in respect to REFOUT in the oscilloscope,and adjust VR355(FEB) to obtain maximum RF and eye pattern.(See Waveform 9,10)



OK

Waveform 9

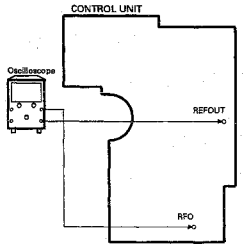


AC Mode Before adjustment Waveform 10

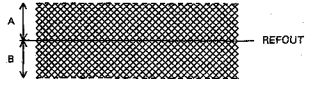
5 RF Offset Adjustment

· **Purpose:**
To adjust the RF amplifier offset to a suitable value.
· **Maladjustment symptoms:**
Focus closure fails readily.

· **Measuring equipment / jigs** · Oscilloscope
· **Measuring point** · RFO
· **Test disc and setting** · TCD-782 (or SONY TYPE 4)
· Normal mode
· **Adjustment position** · VR352(RFO)



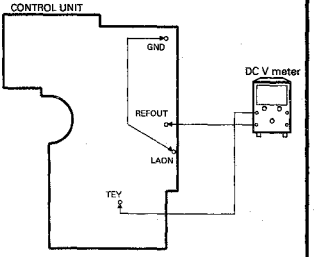
Adjustment Procedure
1.Play tune TNO 19 in normal mode.(TYPE 4:TNO 14)
2.Use VR352 to adjust the RFO waveform so that REFOUT appears at the center.(A-B must not exceed 100 mV.)



6 TE Offset Adjustment-1

· **Purpose:**
To adjust the electrical offset of the tracking servo to zero.
· **Maladjustment symptoms:**
Search times too long,carriage run-away.

· **Measuring equipment / jigs** · DC voltmeter
· **Measuring point** · TEY
· **Test disc and setting** · No Disc
· Test mode
· **Adjustment position** · VR353(TEO)

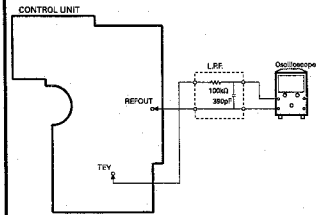


Adjustment Procedure
1.Connect LAON to GND.
2.Switch regulator ON while in test mode.
3.Using VR353(TEO),adjust the TEY output DC voltage in reference to REFOUT to a value of 0±25mV.
4.Switch regulator OFF.

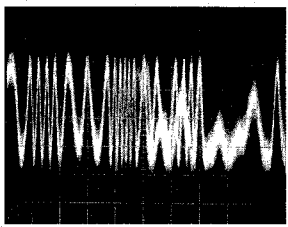
7 Tracking Balance Adjustment-1

· **Purpose:**
To adjust the tracking servo offset to zero.
· **Maladjustment symptoms:**
Search times too long,poor playability,carriage run-away.

· **Measuring equipment / jigs**	· Oscilloscope, low-pass filter
· **Measuring point**	· TEY(Tracking error signal)
· **Test disc and setting**	· TCD-782 (or SONY TYPE 4) · Test mode
· **Adjustment position**	· VR351(T.BAL)

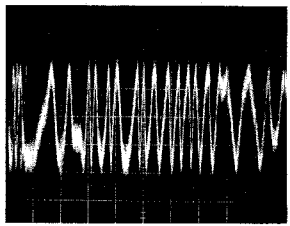


Adjustment Procedure
1. Set the test disc (TCD-782). Switch regulator ON.
2. Using the **FWD** or **REV** key,move the pick-up to about the center of the signal surface.
3. Press the **9** key to close focus.
4. Using an oscilloscope,observe the TEY signal in respect to REFOUT.
   Then adjust VR351(T.BAL)to set the positive and negative amplitudes to the same levels.
   (See Waveform 11-13)
5. Switch the power OFF.



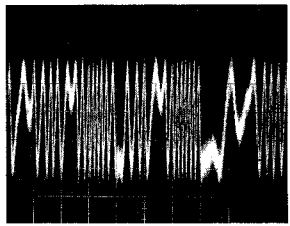
+ 5% NG

Waveform 11



± 0% OK

Waveform 12



– 5% NG

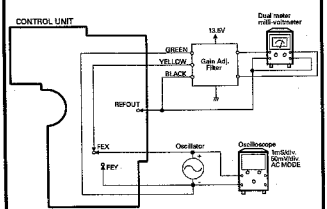
10ms/div.
0.5V/div.
DC Mode

Waveform 13

8 Focus Servo Loop Gain Adjustment

- **Purpose:**
  To adjust the focus servo loop gain to an optimum value.
- **Maladjustment symptoms:**
  Poor playability,reduced resistance to vibration,focus closure fails readily.

· **Measuring equipment / jigs**	· Oscillator,gain adjustment filter (GGF-065),dual meter milli-voltmeter
· **Measuring point**	· FEX,FEY
· **Test disc and setting**	· TCD-782 (or SONY TYPE 4) · Normal mode
· **Adjustment position**	· VR356(FG)



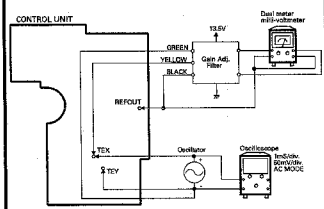
Adjustment Procedure

1. After checking that the power is OFF, connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 19 in normal mode.(TYPE 4:TNO 14)
3. Set the oscillator to 1kHz,and observe the FEX/FEY output in the oscilloscope.Adjust the oscillator output to obtain a FEX/FEY output of 100mVp-p.
4. Adjust VR356(FG) to obtain a milli-voltmeter difference of 0±0.5dB.

9 Tracking Servo Loop Gain Adjustment

- **Purpose:**
  To adjust the tracking servo loop gain to an optimum value.
- **Maladjustment symptoms:**
  Poor playability,reduced resistance to vibration.

· **Measuring equipment / jigs**	· Oscillator,gain adjustment filter (GGF-065),dual meter milli-voltmeter.
· **Measuring point**	· TEX,TEY
· **Test disc and setting**	· TCD-782 (or SONY TYPE 4) · Normal mode
· **Adjustment position**	· VR354(TG)



Adjustment Procedure

1. After checking that the power is OFF,connect the gain adjustment filter and measuring equipment as shown in the above diagram.
2. Play tune TNO 19 in normal mode.(TYPE 4:TNO 14)
3. Set the oscillator to 1.4kHz,and observe the TEX/TEY output in the oscilloscope. Adjust the oscillator output to obtain a TEX/TEY output of 300mVp-p.
4. Adjust VR354(TG) to obtain a milli-voltmeter difference of 0±0.5dB.

10 TE Offset Adjustment-2

· **Purpose:**
To adjust the electrical offset of the tracking servo to zero.
· **Maladjustment symptoms:**
Search times too long,carriage run-away.

· **Measuring equipment / jigs**	· DC voltmeter
· **Measuring point**	· TEY
· **Test disc and setting**	· No Disc · Test mode
· **Adjustment position**	· VR353

Adjustment Procedure
Same as for TE offset adjustment-1,but with the DC voltage of the TEY output adjusted to 0±50mV.
The purpose of this additional adjustment is to correct any deviations generated when carrying out the trackingbalance and tracking servo loop gain adjustments after completing TE offset adjustment-1.

11 Tracking Balance Adjustment-2

· **Purpose:**
To adjust the tracking servo offset to zero.
· **Maladjustment symptoms:**
Search times too long,poor playability,carriage runaway.

· **Measuring equipment / jigs**	· Oscilloscope, low-pass filter
· **Measuring point**	· TEY
· **Test disc and setting**	· TCD-782 (or SONY TYPE 4) · Test mode
· **Adjustment position**	· VR351

Adjustment Procedure
Steps 1 thru 5 same as tracking balance adjustment-1.
6.Check that the level difference between the positive and negative amplitudes of the TEY signal is within 5% (See Waveform 11-13). If greater than 5%,adjust with VR351.
7.If further adjustment was necessary in step 6,repeat TE offset adjustment-2.

● Indicating An Error Number

If the CD should fail to operate, or if an error has taken place during the operation and resulted in an error, the player will enter into the error mode. And the cause of such error is numerically indicated.
This is aimed at assisting an analysis or a repair.

(1) Basic Means of Display

- With ERROR indicated in "MODE" on IP-BUS Display date, an error code is transmitte by the use of MIN and SEC. Identical date are transmitted with MIN and SEC.
- Examples of Display ERR-XX (6 digits)

(2) Error Codes

Error Code	Classification	Description	Detail / Cause
10	ELECTRIC	Carriage home failure	Unmovable to and from the inner circumference → Home switch failed and / or carriage improper moved
11	ELECTRIC	Focus failure	Focussing failed → Disc scarred or stained on the back or vibrating hard
12	ELECTRIC	SETUP failure	Spindle failed to lock or subcode extraordinary → Spindle defective, disc scarred or stained or vibrating hard
14	ELECTRIC	Blank Disc	Unrecorded CD-ROM The disc has been in inserted upside down
30	ELECTRIC	Search time out	Target address failed to reach → Carriage / tracking improperly and / or disc scarred
A0	SYSTEM / MECHANISM	Power failure	Mechanism drive power supply VM short sense or no power supply → Switching transistor defective and / or power abnormal or LOAD terminal failure
50	MECHANISM	An error upon ejection	MAG SW release time has time out Elevation time out when eject
60	MECHANISM	An error while putting in and out the tray	Tray in / out time has time out Tray is caught when put in
70	MECHANISM	An error upon elevation	Elevation time has time out
80	MECHANISM	An error with an empty magazine inserted	No disc is available

* Setup means a series of operations after focusing up to sound output.

● New Test Mode(IP-BUS System)

[Objective]

This feature is for performing failure analysis in aging.

Control is performed by this unit (when this unit enters the test mode).

Unless an abnormal event occurs, the operation is almost the same as normal CD player operation. In case an error such as the servo error should occur, the operation stops with the indication of the replay time at the error without performing normal recovery.

[Main functions]

(1) When a CD is set up, the operation status is displayed.

(2) If the servo error occurs during play, the operation stops with the indication of the replay time at the error.
By pressing a particular key, the display indicating an error cause and replay time can be changed.

(3) Single unit operation is allowed. Disc change, normal play, TR+/-, FF/REW, play mode switching and random play may be performed.

[Details of operation]

(1) How to initiate the new test mode
First initiate the test mode, then select the CD player.
When the jump changeover key is pressed with the power supply to the servo system being OFF, the CD player enters the new test mode.
Because this unit cannot know that the CD player has entered the new test mode, the head unit is still placed in the test mode and outputs a command in the test mode when requested by pressing a particular key.

(2) How to leave the new test mode
After executing the hard reset of this unit, the hard reset of the CD player should be performed.

(3) Indicating an Operation Status During Setup

Status No.	Description	Protection operation
01	Carriage home mode started	None
02	Carriage moving on the internal circumference	10-second time out, home switch defect
03	Carriage moving on the external circumference	10-second time out, home switch defect
11	Setup started	None
12	Spindle turn / Focus search started	None
13	Waiting for focus closing	Failure to focus closing
14	Spindle kicked and focus checked	Out of focus
15	Tracking closed and focus checked	Out of focus
17	Carriage closed and focus checked	Out of focus
18	Lock and subcode waiting	Failure to lock, subcode failed to read out of focus
19	End	None

(4) Error Code Description

Code	Classification	Description	Cause / Detail
40	ELECTRIC	Put out of focus detect	FOK=L 100ms → Scar, Stain, Vibration, Servo defect
41	ELECTRIC	Spindle unlocked detect	LOCK=L 150ms → Scar, Stain, Vibration, Servo defect
42	ELECTRIC	Subcode unacceptable detect	Subcode fails to read 500ms → Scar, Stain, Vibration, Servo defect
43	ELECTRIC	Sound skipped	Last address memory operated → Scar, Stain, Vibration, Servo defect

(5) Operation of keys between TEST and NEW TEST Modes

Command Code	Test Mode Name	Operation	New Test Mode Operation
15 00	DDCN	Servo power supply ON / OFF	—(Error stop time / cause select)
15 01	FWDKCK	FWD-KICK	TR+ / FF
15 02	REVKCK	REV-KICK	TR- / REW
15 03	TRKCLS	TRACKING CLOSE	—
15 04	TRKOPN	TRACKING OPEN	PLAY mode select
15 05	FCSCLS	FOCUS CLOSE	—
15 06	FCSOPN	FOCUS OPEN	RANDOM
15 07	JMPOFF	JUMP OFF	—
15 08	CRGTRK	1/10/32 jump and carriage move select	AUTO / MANUAL select

2.2 TUNER/AUDIO ADJUSTMENT

● Connection Diagram

NOTE:

Select C1 so that total capacity of 80pF is attained from the direction of the receiver jack.

Z: Output impedance of SSG.

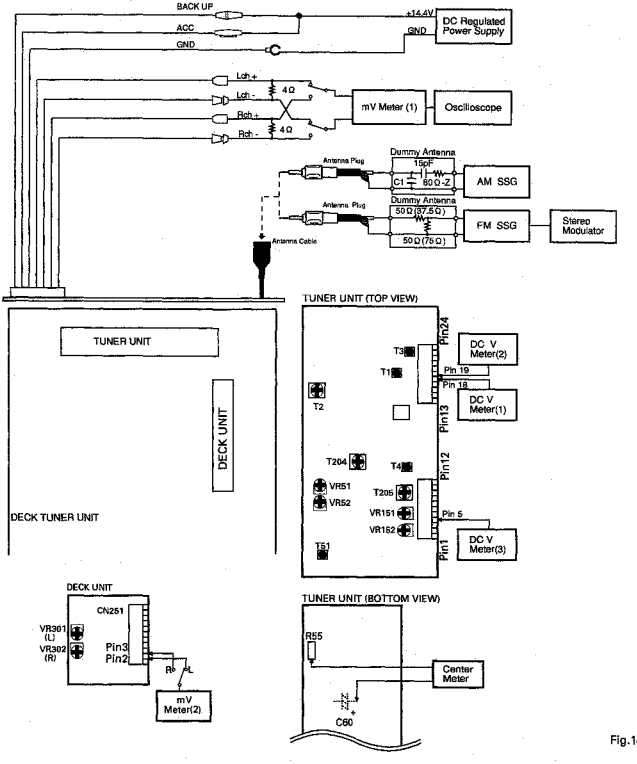


Fig.14

AM ADJUSTMENT

(999) : ES Model tuning steps at 9 kHz

	No.	AM SSG(400Hz,30%) Frequency(kHz)	AM SSG(400Hz,30%) Level(dB μV)	Displayed Frequency(kHz)	Adjustment Point	Adjustment Method (Switch Position)
IF	1	1,000 (999)	20	1,000	T204,T205,	mV Meter(1) : Maximum

FM ADJUSTMENT

(108) : ES Model

Modulation M:MONO MOD., 400Hz 100%(75kHz Dev.)
S:STEREO MOD., 1kHz, L or R=90%, Pilot=10%(67.5kHz+7.5kHz Dev.)

NOTE:Before proceeding to further adjustments after switching power ON, let the tuner run for ten minutes to allow the circuits to stabilize.

	No.	FM SSG Frequency(MHz)	FM SSG Level(dBf)	Displayed Frequency(MHz)	Adjustment Point	Adjustment Method (Switch Position)
TUN Volt	1	107.9 M (108)	65	107.9	T4	DC V Meter(1) : 6.5V±0.1V
IF	1	98.1 M	65	98.1	T51	Center Meter:0
ANT,RF	1	98.1 M	10	98.1	T1,T3	mV Meter(1) : Maximum
IFT	1	98.1 M	10	98.1	T2	mV Meter(1) : Maximum (AUTO ON)
Soft Mute	1	98.1 M	65	98.1		mV Meter(1) : A (AUTO ON)
	2	98.1 M	15	98.1	VR52	mV Meter(1) : A-3dB
MPX	1	98.1 S	65	98.1	VR152	mV Meter(1) : Separation Maximum
ARC	1	98.1 S	40	98.1	VR151	mV Meter(1) : Separation 5dB
SD	1	98.1 S	22	98.1	VR51	DC V Meter(3) : Approx. 5V

DOLBY NR ADJUSTMENT

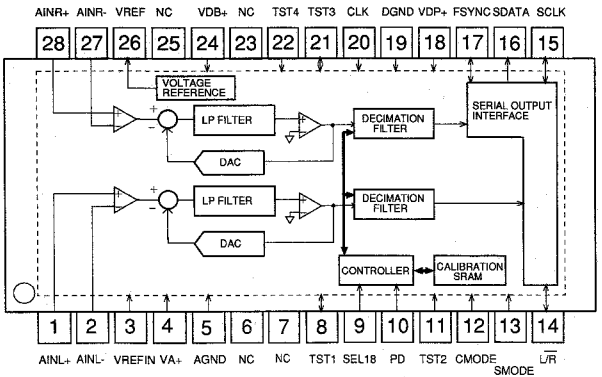
No.	Test Tape	Adjustment Point	Adjustment Method (Switch Position)
1	NCT-150 (400Hz,200nwb/m)	VR301(Lch),VR302(Rch)	mV Meter(2) : -8.24dBs(300mV)+1.5dB -5dB (DOLBY NR Switch : OFF)

● ICs

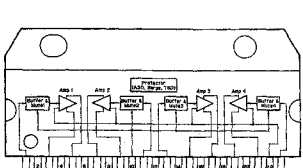
● Pin Functions(AK5340-VS)

Pin No.	Pin Name	I/O	Function and Operation
1	AINL+	I	Lch analog non-inverting input
2	AINL-	I	Lch analog inverting input
3	VREFIN	I	Reference voltage input
4	VA+		Power supply(+5V) for analog circuit
5	AGND		GND for analog circuit
6,7	NC		
8	TST1		Test pin(open)
9	SEL18	I	Output data length select
10	PD	I	Power down pin
11	TST2		Test pin(GND)
12	CMODE	I	Master clock select
13	SMODE	I	Interface clock select
14	L/$\overline{R}$	I/O	Input channel select
15	SCLK	I/O	Serial data clock
16	SDATA	O	Serial data output
17	FSYNC	I/O	Frame synchronize clock
18	VDP+		Power supply(+5V) for digital circuit
19	DGND		GND for digital circuit
20	CLK	I	Master clock input
21,22	TST3,4		Test pin(open)
23	NC		
24	VDB+		Power supply(+5V) for digital circuit
25	NC		
26	VREF	O	Reference voltage output
27	AINR-	I	Rch analog inverting input
28	AINR+	I	Rch analog non-inverting input

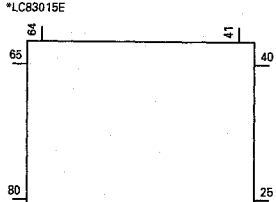
AK5340-VS


AINR+ AINR- VREF NC VDB+ NC TST4 TST3 CLK DGND VDP+ FSYNC SDATA SCLK
28 27 26 25 24 23 22 21 20 19 18 17 16 15
VOLTAGE REFERENCE
LP FILTER
DECIMATION FILTER
SERIAL OUTPUT INTERFACE
DAC
LP FILTER
DECIMATION FILTER
DAC
CONTROLLER
CALIBRATION SRAM
1 2 3 4 5 6 7 8 9 10 11 12 13 14
AINL+ AINL- VREFIN VA+ AGND NC NC TST1 SEL18 PD TST2 CMODE SMODE L/R

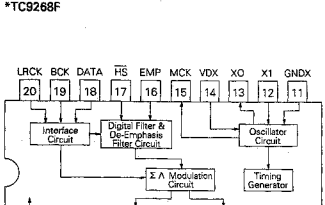
PAU001A



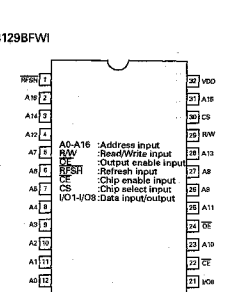
*LC83015E



*TC9268F


LRCK BCK DATA HS EMP MCK VDX XO X1 GNDX
20 19 18 17 16 15 14 13 12 11
Interface Circuit
Digital Filter & De-Emphasis Filter Circuit
Oscillator Circuit
Σ Δ Modulation Circuit
Timing Generator
Test Circuit
Output Circuit
Output Circuit
1 2 3 4 5 6 7 8 9 10
VDD T1 GNDA RO RO VDA LO LO GNDA GNDD

*TC518129BFWI



IC's marked by are MOS type.*
Be careful in handing them because they are very liable to be damaged by electrostatic induction.

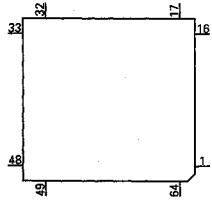
● **Pin Functions(LC83015E)**

Pin No.	Pin Name	I/O	Function and Operation
1-6	P0-P5	I/O	Input/output port
7	ASI1	I	Audio data serial input 1
8	BCK1	I	Bit clock input
9	FS384I	I	384fs or 512fs input
10	LRCKI	I	L/R channel detect signal input
11	ASI2	I	Audio data serial input 2
12	BCK2	I	Bit clock input
13	VDD1		+5V power supply
14-17	TEST1-4	I	Test terminal
18	VSS1		GND
19	TEST5		Test terminal
20	$\overline{RAS}$	O	RAS signal output when DRAM access
21	$\overline{CAS}$	O	CAS signal output when DRAM access
22	$\overline{DWRT}$	O	Data write signal output when memory access
23	$\overline{DREAD}$	O	Data read signal output when memory access
24	$\overline{CE/CS}$	O	Chip enable signal output for SRAM
25-32	D7-D0	I/O	Data input/output
33	VSS2		GND
34-50	A0-A16	O	Address output
51	VDD2		+5V power supply
52	OSC1	I	Crystal input
53	OSC2	O	Crystal output
54	VSS3		GND
55	FS384O	O	384fs or 512fs output
56	FS192O	O	192fs or 256fs output
57	FS128O	O	128fs output
58	FS64O	O	64fs or 32fs output
59	FS32O	O	32fs or 16fs output
60	LRCKO	O	1fs output
61	AOWCK	O	2fs or 1fs output
62	ASO	O	Audio data serial output 1
63	AOTDF1	O	Audio data serial output 2
64	AOTDF2	O	Audio data serial output 3
65	SI	I	Serial data input
66	SICK	I	Serial clock input for SI
67	$\overline{SIRQ}$	I	Request signal input
68	$\overline{SIAK}$	O	Output terminal which indicates serial input now being conducted
69	$\overline{SRDY}$	I	Ready signal input
70	SO	O	Serial data output
71	SOCK	I	Serial clock input for SO
72	$\overline{SORQ}$	I	Request signal input
73	$\overline{SOAK}$	O	Output terminal which indicates serial output now being conducted
74	VSS4		GND
75	$\overline{RES}$	I	Reset
76	$\overline{INT}$	I	Interrupt request input
77	VDD3		+5V power supply
78	SELC	I	System clock switch
79	$\overline{SACK1}$	I	Frequency divider output switch
80	$\overline{SACK2}$	I	FS output clock switch

● **Pin Functions(PD5259B)**

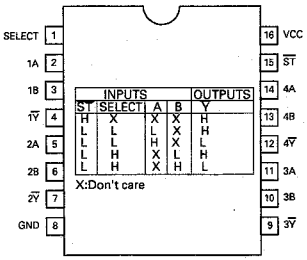
Pin No.	Pin Name	I/O	Output Format	Function and Operation
1-8	NC			Not used
9	DSPCK	O	C	DSP serial clock output
10	DSPDT	O	C	DSP data output
11,12	NC			Not used
13	BSCK	I/O	C	Communication serial clock input/output
14	BSO	O	C	P-BUS serial data output
15	BSI	I		P-BUS serial data input
16	ICRST	O	C	IC reset
17	NC			Not used
18	CNVSS	I		GND
19	RESET	I		Reset input
20	DPD	O	C	A/D converter offset calibration output
21	BRST	O	C	Reset output
22	XIN	I		Crystal oscillating element connection pin
23	XOUT	O		Crystal oscillating element connection pin
24	VSS			GND
25	DSPMUTE	O	C	DSP mute output
26	DSPAK	I		DSP serial input
27	DSPRST	O	C	DSP reset control
28	DSPRQ	O	C	DSP serial request output
29	DSPRDY	O	C	Microcomputer I/F reception enable output
30	DEENS	I		CD single de-emphasis input
31	ENNS	O	C	Emphasis control input control output
32	LRCKK	O	C	LRCK select control output
33-49	NC			Not used
50	BSRQ	O	C	P-BUS service request output pin
51	BRXEN	I/O	C	P-BUS reception enable input/output pin
52	NC			Not used
53	TENBL	I		Test enable input
54	DSPPW	O	C	Power supply for DSP
55	TESTIN	I		Test program start input
56	BMUTEIN	I		Mute input when CD single is in error
57	VDD			Power supply
58	VREF	I		A/D converter reference voltage input
59	AVSS	I		A/D GND
60	VST	O	C	Strobe pulse output for electronic volume
61	VDT	O	C	Data output for electronic volume
62	VCK	O	C	Clock output for electronic volume
63,64	NC			Not used

*PD5259B



Output Format	Meaning
C	C MOS

*TC74HC158AF



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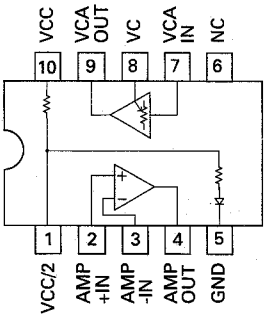
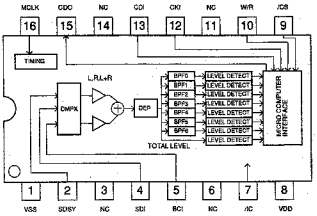
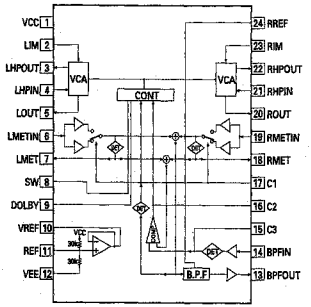


*YSF224M



PA0059AM



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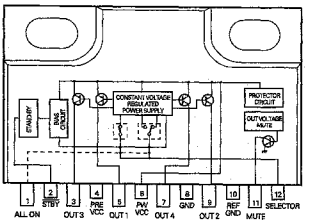

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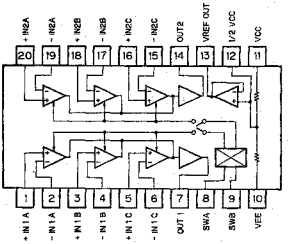


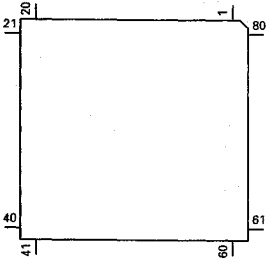
● **Pin Functions(PD4503A)**

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	SOR0	O	C	Source select output
2	SOR1	O	C	Source select output
3	TUNANT	O	C	Auto antenna output
4	AVSS			A/D GND
5	MICVOL	O	C	Analog output
6	SBWVOL	O	C	Analog output
7	AVREF1			
8	RXD	I	C	Serial communication data input
9	TXD	O	C	Serial communication data output
10	CE	I	C	Chip enable input
11	MICMUT	O	C	MIC mute
12	NC			Not used
13	SHELL	I	C	Cassette mechanism shell detection input
14	BRST	O	C	P-BUS reset output
15	BRXEN	I/O	C	P-BUS reception enable input/output
16	BSRQ	I	C	P-BUS communication request input
17	BSIO	I/O	C	P-BUS serial data input/output
18	BSCK	I/O	C	P-BUS serial clock input/output
19	AUX	O	C	AUX ON/OFF select
20	CDRST	O	C	Reset for CD mechanism module
21	PLAY	O	C	MS gain select output
22	DLBYBC	O	C	Cassette mechanism dolby NR B/C select output
23	NR	O	C	Cassette mechanism NR output
24	SC1	O	C	Cassette mechanism sub motor control output
25	SC2	O	C	Cassette mechanism sub motor control output
26	CM	O	C	Cassette mechanism capstan motor control output
27	MSIN	I	C	Cassette mechanism MS sense input
28	DIRO	O	C	Cassette mechanism head F/R select output
29	MTLSW	I	C	Cassette mechanism metal sense input
30	LOADSW	I	C	Cassette mechanism tape loading input
31	POS	I	C	Cassette mechanism position sense input
32	RES	I	C	Cassette mechanism reverse end sense input
33	VSS			GND
34	NES	I	C	Cassette mechanism normal end sense input
35	STBY	O	C	Cassette mechanism driver stand-by output
36	FLEX	O	NH	Sound tune-up IC control
37	SUBW0	O	NH	Sub woofer control 0
38	SUBW1	O	NH	Sub woofer control 1
39	NC			Not used
40	TELIN	I	C	Telephone mute input
41	SYSPWR	O	C	System power control
42	FLPILMI	O	C	Inside flap illumination control
43	TUNMUTE	O	C	Tuner mute output
44	ASENBO	O	C	Slave power supply control output
45	PEE	O	C	Beep tone output
46	MUTE	O	C	System mute
47	FLPPWR	O	C	Flap power
48	ANTFIX	O	C	Diversity output
49	NC			Not used
50	FM/AM	O	C	FM/AM power select output
51	MONO	O	C	Forced mono output
52	VDIN	I	C	Power supply short sensor input
53	MODEL0	I	C	Model terminal difference
54	MODEL1	I	C	Model terminal difference
55	BMUTIN	I	C	P-BUS mute input
56	TX	O	C	IP BUS data output
57	RX	I	C	IP BUS data input
58	IPPW	O	C	Power supply control output for IP BUS interface IC
59	SD	I	C	SD signal input

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
60	RESET			Reset
61	BLIN	I	C	Music sense
62	BSENS	I	C	Back up power sense input
63	ASENS	I	C	ACC power sense input
64	PDI	I	C	PLL data input
65	PDO	O	C	Data output for PLL IC
66	PCK	O	C	PLL clock output
67	PCE	O	C	Chip enable output for PLL IC
68	VDD			Power supply
69	X2			Crystal oscillator connection pin
70	X1			Crystal oscillator connection pin
71	IC			GND
72	XT2			Not used
73	TESTIN	I		Test program mode input
74	AVDD			Positive power supply terminal for analog circuit
75	AVREF0			GND
76	SL	I	C	Signal level input
77	FLPCLS	O	C	Flap motor close output
78	FLPOPN	O	C	Flap motor open output
79	FOPNSW	I	C	Auto flap open SW sense
80	FCLSSW	I	C	Auto flap close SW sense

I/O Format	Meaning
C	C MOS
NH	High resistivity N channel open drain

*PD4503A



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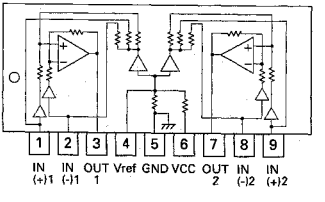
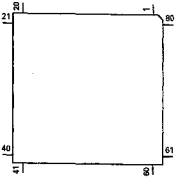


● **Pin Functions(PD4504B)**

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	ADSW	O	C	AD power supply switch
2,3	NC			Not used
4	AVSS			A/D GND
5,6	NC			Not used
7	AVREF1			
8	DSPIN	I	C	DSP serial data input
9	KEYOUT	O	C	Key data output
10	NC			Not used
11	SPCI	I		Communication data input of the spectrum analyzer IC
12	SPCO	O	C	Communication data output of the spectrum analyzer IC
13	SOCKI	O	C	Communication clock output of the spectrum analyzer IC
14	SPCS2	O	C	Communication chip select of the spectrum analyzer IC
15	SPCWR	O	C	Communication read/write control of the spectrum analyzer IC
16-18	NC			Not used
19	FUNC	O	C	Function key ON
20	NC			Not used
21	SPCS1	O	C	Communication chip select of the spectrum analyzer IC
22-32	NC			Not used
33	VSS			GND
34,35	NC			Not used
36	CONT0	O		Contrast adjustment output
37	CONT1	O		Contrast adjustment output
38	CONT2	O		Contrast adjustment output
39	CONT3	O		Contrast adjustment output
40	LDSO	O	C	LCD driver communication data output
41	LSCK	O	C	LCD driver communication clock output
42	LAD	O	C	LCD driver communication address/data select
43	LLATC	O	C	LCD driver communication latch output
44	LPOW	O	C	LCD power source control
45	BKLT	O	C	Back-light control
46	DISPK	O	C	Display key light
47-59	NC			Not used
60	RESET	I		Reset input
61	REMIN	I		Remote control signal input
62	TESTIN	I		Test program mode input
63	CE	I		Chip enable input
64-67	NC			Not used
68	VDD			Power supply
69	X2			Crystal oscillator connection pin
70	X1			Crystal oscillator connection pin
71	IC			GND
72	NC			Not used
73	NC	O	C	NC *L*Hold
74	AVDD			Positive power supply terminal for analog circuit
75	AVREF0			GND
76-80	KDT0-4	I		Key input

*PD4504B

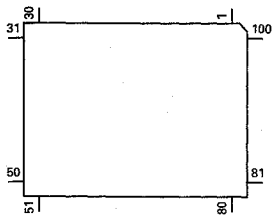


I/O Format	Meaning
C	C MOS

● **Pin Functions(GGC1055)(MSC5301B-02GS-V1K)**

Pin No.	Pin Name	I/O	Function and Operation
1-11	SEG54-64	O	Segment driver output
12	NC		Not used
13	COM1	O	Common driver output
14	NC		Not used
15	COM2	O	Common driver output
16	NC		Not used
17	COM3	O	Common driver output
18	NC		Not used
19	COM4	O	Common driver output
20	NC		Not used
21	COM5	O	Common driver output
22	NC		Not used
23	COM6	O	Common driver output
24	NC		Not used
25	COM7	O	Common driver output
26	NC		Not used
27	COM8	O	Common driver output
28,29	V4,V1		Bias power supply terminal for LCD driver
30,31	CS0,CS1	I	Chip select input
32	LLATC	I	Latch pulse input
33	LAD	I	Data select signal input
34	LDSO	I	Serial data input
35	LSCK	I	Shift clock input
36	POR	I	Power on reset input
37	BLK	I	LCD display control input
38	FRAM		Not used
39,40	OS1,OS2		Oscillation terminal
41	ϕ		Oscillation terminal
42	VDD		Power supply terminal
43	μGND		GND terminal
44	VDSP		Power supply terminal for LCD driver
45,46	V2,V3		Bias power supply terminal for LCD driver
47-91	SEG1-45	O	Segment driver output
92	NC		Not used
93-100	SEG46-53	O	Segment driver output

*GGC1055(MSC5301B-02GS-V1K)



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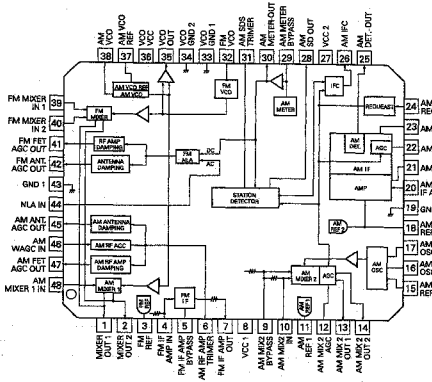

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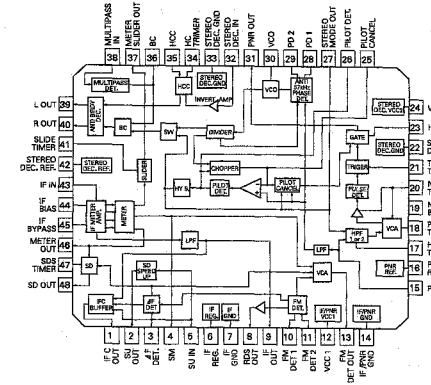
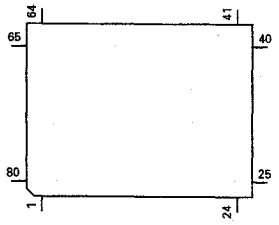


● **Pin Functions(PD5257A)**

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
1	NC			Not used
2	TEMP	I		Temperature detector
3	VDSENSE2	I		Short sense input
4	DCD	O	NM	Command/data appointment output
5	DCS	O	NM	Chip select output
6	DRDY	I		Ready input
7	DRST	O	NM	Reset output
8	A0	O	NM	Control signal distinguishing data from microcomputer
9	XSCK	O	NM	LSI clock output
10	XSO	O	NM	LSI data output
11	XSI	I	NM	LSI data input
12	STB	O	C	LSI Strobe output
13	RST	O	C	Reset ouput pin
14	ENDOUT	O	C	Digital output enable signal
15	PEE	O	C	Beep tone output
16,17	NC			Not used
18	BRST	I		Bus communication reset input pin
19	BSRQ	O	C	Bus communication service request output pin
20	BRXEN	I/O	C	Bus communication reception enable input/output pin
21	BSCK	I/O	C	Bus serial clock input/output
22	BSO	O	C	Serial data output pin
23	BSI	I		Bus serial data input
24	EJSW	I		Eject signal input
25	REMIN	I		Remote control pulse input
26	CNVSS			GND
27	RESET	I		Reset input
28	FECNT	O	C	FE output control pin
29	NC			Not used
30	XIN	I		Crystal oscillating element connection pin
31	XOUT	O	C	Crystal oscillating element connection pin
32	VSS			Gnd
33-40	NC			Not used
41	POWER	O	C	CD +5V control
42	CONT	O	C	Servo driver power supply control
43,44	NC			Not used
45	VDSENS	I		VD over voltage sense input
46	VDCONT	O	C	VD control output
47	DSET	O	C	Disc set indicator control output
48	BLGT	O	C	LCD back light control output
49	VMC	O	C	Loading motor driver power supply
50	EJ	O	C	Loading motor EJECT control
51	LOAD	O	C	Loading motor LOAD control
52	NC			Not used
53	DINC	I		Disc insert sense input
54	EJTD	I		Disc eject position sense input
55	CLAMP	I		Disc clamp sense input
56	NC			Not used
57	HOLD	O	C	Hold control output
58	TBC	O	C	Tracking bank switching output
59	NC			Not used
60	MIRR	I		Mirror detector input
61	LOCK	I		Spindle lock detector input
62	FOK	I		FOK signal input
63	HOME	I		Home position detector input
64-68	NC			Not used
69	OPTSW	I		Digital output ON/OFF input
70	CDMUTE	O	C	CD mute output

Pin No.	Pin Name	I/O	I/O Format	Function and Operation
71	ADENA	O	C	A/D reference voltage output
72	TESTIN	I		Test program mode input
73	VCC			Back up 5V
74	VREF	I		A/D reference voltage input
75	AVSS			A/D GND
76	CSEL			Compression select
77,78	NC			Not used
79	KD0	I		Analog key input 0
80	KD1	I		Analog key input 1

*PD5257A



I/O Format	Meaning
C	C MOS
NM	Middle resistivity N channel open drain

3. EXPLODED VIEW PARTS LIST

NOTE:

● Parts marked by "*"are generally unavailable because they are not in our Master Spare Parts List.

● Chassis(Exploded View:Page 2-5)

Mark	No.	Description	Part No.
	1	Screw	BSZ26P060FMC
	2	Screw	BSZ26P060FZK
	3	Screw	BSZ30P060FMC
	4	Screw	BSZ30P120FMC
	5	Cord Assy	CDE4445
	6	Fuse	CEK1136
	7	Cap	CNS1472
	8	Resistor	RS1/2P102JL
	9	Case	CNB1807
	10	Holder	CNC4709
	11	Cover	CNC5290
	12	Heat Sink	CNR1326
	13	Cap	CNV26801
	14	*****	
	15	Remote Control Assy	CXA6267
	16	Battery Cover	CZN6292
	17	Connector Unit	CXA6744
	18	CD Mechanism Module	CXK2545
	19	Cassette Mechanism Module	EXK1975
	20	Screw	BSZ30P060FMC
	21	Screw	BSZ30P060FMC
	22	Cord	CDE4074
	23	Cord	CDE4361
	24	Holder	CNC5657
	25	Insulator	CNM3929
	26	DSP AMP Unit(UC)	CWM3844
		DSP AMP Unit(ES)	CWM3843
	27	Chassis Unit	CXA6349
	28	Screw	BSZ30P060FMC
	29	Insulator	CNM3928
	30	Deck Tuner Unit(UC)	CWM3850
		Deck Tuner Unit(ES)	CWM3849
	31	Chassis Unit	CXA6348
	32	Screw	BPZ20P050FZK
	33	Screw	BPZ20P080FMC
	34	Button(1-6)	CAC3939
	35	Button(7-12)	CAC3940
	36	Button(+,-)	CAC3941
	37	Button(◀,▶)	CAC3942
	38	Button(-,+)	CAC4108
	39	Button(SOURCE)	CAC4109
	40	Button(V/F)	CAC3945

Mark	No.	Description	Part No.
	41	Button(CD EJECT)	CAC3946
	42	Button(OPEN/CLOSE)	CAC3947
	43	Button(-)	CAC3948
	44	Button(◁I▷)	CAC3949
	45	Button(F)	CAC4088
	46	Button(DSP,SS)	CAC4089
	47	Button(RESET)	CAC4090
	48	Button(AUX)	CAC3954
	49	Door	CAT1605
	50	Screw(M1.7×5.5)	CBA1070
	51	Screw(M2×10)	CBA1153
	52	Screw(M2×3)	CBA1154
	53	Washer	CBF-046
	54	Washer	CBF1050
	55	Spring	CBH1619
	56	Spring	CBH1656
	57	Spring	CBH1695
	58	Connector	CDE4286
	59	Connector	CDE4437
	60	Lamp(IL1)	CEL1370
	61	Arm	CNC1280
	62	Cushion	CNM3934
	63	Insulator	CNM4183
	64	Lens	CNV3871
	65	Lens	CNV3872
	66	Lens	CNV3873
	67	Lens	CNV3874
	68	Lens	CNV3875
	69	Holder	CNV3932
	70	Switch(S1)	CSN-088
	71	Key Board Unit(UC)	CWM3853
		Key Board Unit(ES)	CWM3852
	72	Switch Unit	CWM3931
	73	Holder Unit	CXA6907
	74	Bracket Assy	CXA6360
	75	Bracket Assy	CXA6361
	76	Grille Unit	CXA6905
	77	Grille Unit(UC)	CXA6906
		Grille Unit(ES)	CXA6908
*	78	Door	CAT1604
	79	Spring	CBH1371
	80	Holder Unit	CXA6484

Mark	No.	Description	Part No.
	81	Holder Unit	CXA6572
	82	Connector(3P)(CN1952)	CDE4491
	83	Terminal(1P)(CN1952)	CKF1058
	84	Connector(14P)(CN1951)	CKM1091
	85	Plug(3P)(CN1901)	CKS1036
	86	Plug(4P)(CN1851)	CKS1238
	87	Connector(12P)(CN1401)	CKS2242
	88	Connector(28P)(CN1701)	CKS2258
	89	Holder	CNC5293
	90	Holder	CNC5303
	91	Holder	CNC5450
	92	Shield	CNC5451
	93	Insulator	CNM4063
	94	Connector	CDE4239
	95	*****	
	96	Connector	CDE4497
	97	Antenna Cord	CDH1199
	98	*****	
	99	Mini Jack(5P)	CKN1012
	100	Connector(20P)(CN251)	CKS1730
	101	Connector(12P)(CN1010)	CKS2242
	102	Connector(28P)(CN1020)	CKS2258
	103	Connector(3P)(CN451)	CKS2332
	104	Connector(11P)(CN751)	CKS2480
	105	Plug(3P)	CKS2952
	106	*****	
	107	Holder	CNC2218
	108	Holder	CNC4958
	109	Holder	CNC5295
	110	Spacer	CNM4058
	111	Tuner Unit	CWE1372
	112	Connector	CDE4496
	113	Plug(5P)	CKS-786
	114	Holder	CNC5300
	115	Plate	CNM3932
	116	Spacer	CNM3933
	117	P.C.Board	CNP3865
	118	Connector	CNV3893
	119	Spacer	CNV3894
	120	EL(EL901)	CEL1352

Mark	No.	Description	Part No.
	121	LCD(LCD901)(UC)	CAW1257
		LCD(LCD901)(ES)	CAW1252
	122	*****	
	123	Screw(M2×3)	CBA1062
	124	Screw(M1.7×5.5)	CBA1070
	125	Washer	CBF1050
	126	Gear	CNV2389
	127	Gear	CNV3869
	128	Gear Unit	CXA3406
	129	Holder Unit	CXA6347
	130	Gear Unit	CXA6350
	131	Motor(M1)	CXM1085
	132	Switch(S998,999)	CSN1022
	133	Connector(20P)(CN1702)	CKS2302
	134	Screw	BSZ30P060FMC
	135	Screw	BSZ30P080FMC
	136	*****	
	137	Holder	CNC5292
	138	Holder	CNC5294
	139	Insulator	CNM3634
	140	Connector(14P)(CN910)	CKS1952
	141	Connector(20P)(CN912)	CKS1958
	142	Connector(2P)(CN914)	CKS2191
	143	Screw	BSZ30P060FMC
	144	Holder	CNC5291
	145	Connector(5P)(CN907)	CKS1943
	146	Connector(14P)(CN903)	CKS1952
	147	Connector(2P)(CN904)	CKS2191
	148	Connector(5P)(CN905)	CKS2194
	149	Antenna Jack(1P)(ANT1)	CKX1043
	150	Holder	CNC4880
	151	Inverter(INV1900)	CTX1047
	152	IC(IC1706)	L780S05
	153	Transistor(Q1905)	2SD1684
	154	Transistor(Q1709)	2SD1944
	155	IC(IC1551)	PAU001A
	156	IC(IC701)	PA2023A
	157	IC(IC902)	BX-1393
	158	Choke Coil(L1951)	CTH1103
*	159	Gathering P.C.Board	CNX2220
	160	Holder	CNC4882
	161	Insulator	CNM3825

● CD Mechanism Module (Exploded View:Page 2-7)

Mark	No.	Description	Part No.
	1	Damper	CNV2882
	2	Holder	CNV3704
	3	Screw	CBA1004
	4	Spring	CBH1417
	5	Frame	CNC3816
	6	Guide	CNV2891
	7	Frame	CNC4783
	8	Screw	BMZ20P030FMC
	9	Bracket	CNC4687
	10	Screw	BMZ20P040FNI
	11	Frame	CNC4686
	12	Screw	JFZ20P018FNI
	13	Spring	CBL1131
	14	Bracket	CNC3830
	15	Clamper	CNV2864
	16	Arm Unit	CXA5090
	17	Spring	CBH1415
	18	Washer	CBF1039
	19	Spring	CBH1418
	20	Spring	CBH1419
	21	Arm Unit	CXA5091
	22	Arm	CNV2876
	23	Washer	CBF1038
	24	Sheet	CNM3582
	25	Gear	CNV2875
	26	Spring	CBH1423
	27	Arm Unit	CXA5383
	28	Phot-transistor(P1–4)	PT4800
	29	Spring	CBH1449
	30	P.C.Board	CNP3125
	31	Spring	CBH1420
	32	Lever	CNC3828
	33	Roller	CLA1936
	34	Screw	JFZ20P018FNI
	35	Spring	CBL1130
	36	Arm Unit	CXA6176
	37	Sheet	CNM3873
	38	Holder	CNV3276
	39	Washer	HBF-132
	40	Spring	CBH1412
	41	Roller	CNV2225
	42	Short Pin	CBL1010
	43	Washer	YE15FUC
	44	Arm	CNC5510
	45	Spring	CBH1421
	46	Gear Unit	CXA4265
	47	Connector(4P)	CKS2088
	48	Switch(S1,2)	CSN1012
	49	Screw	CBA1077
	50	LED(D1–4)	GL4800
	51	Gathering P.C.Board	CNX1983
	52	Connector(16P)	CKS2064
	53	Washer	YE20FUC
	54	Arm	CNV2884
	55	Lever Unit	CXA5093
	56	Arm	CNV2885
	57	Motor Unit(M1, Spindle)	CXA6526
*	58	Support Wheel	CNV3945
	59	Screw	HBA-258
	60	·····	
	61	Spring	CBH1414
	62	Spring	CBH1424
	63	Connector(2P)	CDE3369
	64	Spring	CBH1410
	65	Spring	CBL1129
	66	Screw	JFZ20P025FMC
	67	Belt	CNT1047
	68	Bracket	CNC3832
	69	Holder	CNV2878
	70	Spring	CBH1413
	71	Cover	CNV2889
	72	Holder	CNV3023
	73	Chassis Unit	CXA4258
	74	Lever	CNV2874
	75	Lever	CNC3824
	76	Gear	CNV2871
	77	Arm	CNC3833
	78	Gear	CNV2872
	79	Gear	CNV2883
	80	Gear	CNV2873
	81	Gear	CNV2870
	82	Gear	CNV2869
	83	Bracket Unit	CXA4261
	84	Shaft	CLA2027
	85	Motor Unit(M2, Carriage)	CXA4649
	86	Holder	CNV2888
	87	Screw Unit	CXA5384
	88	Screw	CBA1082
	89	Washer	CBF1054
	90	Gear	CNV2892

Mark	No.	Description	Part No.
	91	Gear	CNV2868
	92	Bracket Unit	CXA5078
	93	·····	
	94	Screw	PMS26P040FMC
	95	Rack	CNV3268
	96	Spring	CBH1508
	97	Bracket	CNC4436
	98	Screw	JFZ17P035FNI
	99	Holder Unit	CXA5246
	100	PU Unit	CGY1020
	101	·····	
	102	Spring	CBH1422
	103	Holder	CNC4306
	104	Screw	JGZ20P070FNI
	105	·····	
	106	Motor Unit(M3, Loading)	CXA4267
*	107	Connector(CN352)	CKS2063
	108	Connector(CN752)	CKS2150
*	109	Connector(CN351)	CKS2121
	110	Control Unit	CWX1715
	111	Weight	CNC5112
	112	Spring	CBH1458
	113	Spring	CBH1457
	114	Spacer	CNM3315
	115	CD Mechanism Unit	CXA5619
116-118		·····	
	119	Screw	CBA1230
	120	·····	
	121	Screw	PMS20P025FMC
	122	·····	
	123	Spring	CBL1196

● **Cassette Mechanism Module (Exploded View:Page 2-9)**

Mark No.	Description	Part No.
1	Arm	ENV1424
2	Screw	BSZ20P040FMC
3	Screw(M2x4)	CBA1015
4	Washer	CBF1037
5	Washer	CBF1038
6	Washer	CBG1003
7	Spring	EBH1488
8	Deck Unit	CWM3794
9	Spring	EBH1458
10	Spring	EBH1434
11	Spring	EBH1435
12	Spring	EBH1437
13	Spring	EBH1464
14	Spring	EBH1439
15	Spring	EBH1440
16	Spring	EBH1441
17	Spring	EBH1442
18	Spring	EBH1443
19	Spring	EBH1446
20	·····	
21	Spring	EBL1016
22	Connector(CN252)	CKS2127
23	Photo-Interrupter	EGN1002
24	Roller	ELA1281
25	Shaft	ELA1282
26	Roller	ELA1283
27	Cover	ENC1307
28	Connector(CN251)	CKS1711
29	Connector(CN253)	CKS2129
30	Arm	ENC1310
31	Arm	ENC1311
32	Lever	ENC1312
33	Holder	ENC1365
34	Cover	ENC1372
35	Lever	ENC1315
36	Lever	ENC1353
37	Bracket	ENC1317
38	Arm	ENC1335
39	P.C.Board	ENP1109
40	P.C.Board	ENP1120
41	P.C.Board	ENP1107
42	Roller	ENR1023
43	Belt	ENT1027
44	Gear	ENV1422
45	Gear	ENV1347
46	Gear	ENV1423
47	Collar	ENV1349
48	Gear	ENV1350
49	Gear	ENV1351
50	Gear	ENV1354
51	Gear	ENV1355
52	Gear	ENV1357
53	Gear	ENV1358
54	Gear	ENV1359
55	Clamper	ENV1360
56	Clamper	ENV1361
57	Arm	ENV1362
58	Gear	ENV1363
59	Flywheel	ENV1410
60	Head Assy	EXA1333
61	Arm Unit	EXA1276
62	Arm Unit	EXA1277
63	Motor Unit	EXA1334
64	Motor Unit	EXA1279
65	Head Base Unit	EXA1344
66	Gear Unit	EXA1345
67	Guide Unit	EXA1356
68	Chassis Unit	EXA1342
69	Pinch Roller Unit	EXA1284
70	Pinch Roller Unit	EXA1285
71	Reel Unit	EXA1306
72	Arm Unit	EXA1338
73	Sub Chassis Unit	EXA1312
74	Arm Unit	EXA1289
75	Spare Unit	EXA1367
76	Screw	HBA-147
77	Washer	HBF-179
78	Screw	JGZ20P025FNI
79	Screw	PMS20P022FUC
80	P.C.Board Unit	EWM1003
81	·····	
82	Washer	YE15FUC
83	Washer	YE20FUC
84	Washer	YE25FUC
85	Frame Unit	EXA1290
86	Lever	ENC1308
87	Lever	ENC1309
88	Screw	EBA1033
89	Spring	ELB1020
90	Screw	JFZ17P025FNI

4. ELECTRICAL PARTS LIST

NOTE:

- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

Chip Resistor

RS1/OSOOOJ,RS1/OOSOOOJ

Chip Capacitor (except for COS.....)

CKS....., CCS....., CSZS.....

=====Circuit Symbol & No. Part Name=====	Part No.
• FH-P95/UC	
DSP Amp Unit Consists of • DSP Amp P.C.Board • Inverter P.C.Board	
Unit Number : CWM3844 Unit Name : DSP Amp Unit	
MISCELLANEOUS	
IC 1401 1402	NJM2068MD
IC 1403	AK5340-VS
IC 1451	PMJ003A
IC 1551	PAU001A
IC 1601 1602	TC9288F
IC 1603 1604	TA2028F
IC 1701	LC83015E
IC 1702	TC518128BFWI
IC 1703	PD5259B
IC 1704	TC74HC393AF
IC 1705	TC74HC158AF
IC 1706	L7805/05
IC 1707	S-80722AN-DK
IC 1708	TC74HC175AF
IC 1751 1752	YSF224M
IC 1801	M5282FP
IC 1802 1851	NJM2068MD
IC 1803	TC4052BF
IC 1951 1952	PML001A
Q 1551	DTC314TK
Q 1552 1851 1852 1853 1854	DTC314TK
Q 1701	DTC124EK
Q 1702	DTC124EK
Q 1703 1708	DTA114EK
Q 1704 1706 1707 1711 1902	DTC124EK
Q 1705 1904	2SC2712
Q 1709	2SD1944
Q 1713	2SC2712
Q 1855	DTA114EK
Q 1900	2SC2712
Q 1901	2SA1797
Q 1903	2SA1162
Q 1905	2SD1684
Q 1951	2SC2712
D 1401	MA3043M
D 1551 1552 1553 1554 1561 1562 1563 1564 1705 1709	ERA15-02VH
D 1701 1706	MA151WK
D 1702 1708	MA151K
D 1703	MA151WK
D 1704	MA3082H
D 1707	MA3091M
D 1710 1951 1952 1954 1955 1956 1957	ERA15-02VH
D 1801	MA3039L
D 1900	MA3100M
D 1901	MA3068M

=====Circuit Symbol & No. Part Name=====		Part No.
D 1953		MA151K
D 1958		MA3082L
L 1401 1601 1701 1702 1704	Inductor	LCTA2R2J3225
L 1402 1602	Inductor	LCTB2R7K2125
L 1603 1604 1605 1606 1703 1708	Inductor	LCTB2R7K2125
L 1705 1706 1707 1751 1752	Inductor	LCTA2R2J3225
L 1951	Choke Coil	CTH1103
L 1952	Inductor	LCTA2R2J3225
X 1601	Crystal Resonator 16.9344MHz	CSS1067
X 1701	Ceramic Resonator 8.000MHz	CSS1107
EF1951	EMI Filter	CCG1003
INV1900	Inverter	CTX1047

RESISTORS

R 1401 1402 1403 1404 1405 1406 1407 1408 1409 1410	RS1/10S223J
R 1411 1412 1859 1860 1901	RS1/10S223J
R 1413 1414 1415 1416 1905 1955	RS1/10S223J
R 1417 1418 1423 1430 1699 1702 1703 1705 1709 1711	RS1/10S102J
R 1421 1422 1764 1776	RS1/10S0R0J
R 1431 1432 1433 1434	RS1/10S512J
R 1435 1436 1437 1438 1730	RS1/10S472J
R 1451 1817 1818 1819 1820	RS1/10S103J
R 1452 1453 1454	RS1/10S302J
R 1507 1508	RS1/10S0R0J
R 1517 1518	RS1/10S0R0J
R 1519	RS1/10S100J
R 1551 1552 1560 1561 1562 1706 1733 1735	RS1/10S221J
R 1553	RS1/10S472J
R 1554 1563 1564	RS1/10S472J
R 1555 1556 1557 1558 1565 1566 1567 1568	RS1/10S2R2J
R 1569 1723	RS1/10S103J
R 1569	RS1/10S153J
R 1570	RS1/10S101J
R 1601 1602 1603 1604	RS1/10S222J
R 1605 1606	RS1/10S104J
R 1611 1612 1613 1614	RS1/10S222J
R 1615 1616	RS1/10S104J
R 1619	RS1/10S100J
R 1701 1715 1718 1722 1752 1821 1952	RS1/10S473J
R 1707 1708 1737	RS1/10S221J
R 1710 1712 1741 1750 1753 1756 1757 1758 1759 1760	RS1/10S102J
R 1713 1714	RS1/16S221J
R 1717 1720 1725 1726 1738 1765 1767 1801 1802	RS1/10S473J
R 1719 1721 1763 1766 1768 1769 1770 1772 1773 1774	RS1/10S102J
R 1724 1731 1851 1852 1853 1854 1904 1906	RS1/10S103J
R 1727	RS1/4S471J
R 1728	RS1/4S221J
R 1729	RS1/10S392J
R 1732 1734	RS1/10S221J
R 1736 1740	RS1/10S102J
R 1739	RS1/10S102J
R 1746 1747 1754 1755	RA4C102J
R 1748 1749	RA3C102J
R 1761	RS1/10S102J

=====Circuit Symbol & No. Part Name=====	Part No.
R 1762	RS1/10S124J
R 1771	RS1/10S221J
R 1775	RS1/10S0R0J
R 1777	RS1/10S102J
R 1778	RS1/16S473J
R 1779	RS1/10S103J
R 1803 1804 1907 1956	RS1/10S473J
R 1805 1808 1812 1815	RS1/10S104J
R 1806 1953 1954	RS1/10S102J
R 1807 1809 1811 1813 1814 1816	RS1/10S104J
R 1810	RS1/16S472J
R 1855 1856 1857 1858	RS1/10S391J
R 1862	RS1/10S0R0J
R 1863 1864 1865 1866	RS1/10S0R0J
R 1900	RS1/2S561J
R 1902	RS1/10S222J
R 1903	RS1/2S182J
R 1951	RS1/4S103J
R 1957	RS1/10S183J
R 1959	RS1/10S103J

CAPACITORS

C 1401 1402 1425 1427	CEA2R2M50NPLL
C 1403 1404 1424 1426 1463	CEA2R2M50LL
C 1405 1406 1428 1429	CCSQCH330J50
C 1407 1408 1423 1702 1703 1704 1705 1712	CKSQYB103K50
C 1409 1410 1411 1505 1515 1561 1562 1569	CEA100M16LL
C 1414 1417 1418 1420 1605 1615 1706 1815 1953	CKSQYB473K50
C 1415 1416 1701	CEV4R7M35
C 1419 1717	CASA010M16
C 1430 1431 1432 1433 1805	CEA470M16LL
C 1437	CSZS4R7M6R3
C 1438	CKSQYB104K25
C 1451 1452 1453 1454 1455 1456 1457 1458	CEA4R7M35LL
C 1459	CKSQYB152K50
C 1460 1461 1464 1613 1808	CKSQYB104K25
C 1462	CEA220M6R3LL
C 1551 1552	CEA100M16NPLL
C 1553	CKSQYB822K50
C 1554 1563 1564	CKSQYB822K50
C 1555 1556 1557 1558 1565 1566 1567 1568	CKSYB104K25
C 1559 1560	CKSYB104K25
C 1570	CEA330M10LL
C 1601 1611	CSZS4R7M6R3
C 1603	CKSQYB104K25
C 1604 1607 1614 1617	CEV220M6R3
C 1608 1807 1954 1956	CKSQYB473K50
C 1609 1610	CCSQCH060D50
C 1618 1722	CEV100M16
C 1619	CKSQYB104K25
C 1620	CCSQCH220J50
C 1707 1710 1806 1857	CEA100M16LL
C 1708	CEA220M10LL
C 1709 470µF/16V	CCH-114
C 1713	CCSQCH330J50
C 1714 1716 1718 1720 1721 1725 1901	CKSQYB103K50
C 1715 1751 1752 1753 1754	CKSQYB103K50
C 1719 0.22F/5.5V	CCL1035
C 1723	CKSYB102K50
C 1724	CEV010M50
C 1726	CEV010M50
C 1755 1756 1757 1758	CCSRCH220J50
C 1759	CCSQCH220J50
C 1801 1804	CEA4R7M35LL
C 1802	CKSQYB332K50
C 1803	CEA100M10NPLL
C 1809	CKSQYB562K50

=====Circuit Symbol & No. Part Name=====	Part No.
C 1810	CEA100M16LL
C 1811	CKSQYB273K50
C 1812	CKSQYB683K25
C 1813	CKSQYB392K50
C 1814	CKSQYB183K25
C 1816	CKSQYB272K50
C 1851 1852	CCSQCH101J50
C 1853 1854	CEA100M16LL
C 1855 1856	CKSQYB222K50
C 1858	CEA2R2M50NPLL
C 1900	CEA100M16LL
C 1951 4700µF/16V	CCH1188
C 1952	CKSYF105Z25

Deck Tuner Unit
Consists of
• Deck Tuner P.C.Board
• MIC P.C.Board

Unit Number : CWM3850
Unit Name : Deck Tuner Unit

MISCELLANEOUS

IC 251	PA0050AM
IC 252	AN6263N
IC 453	TC4066BF
IC 454	XRA3131FS
IC 501	LC72140M
IC 601	PD4503A
IC 602	S-80734ANDYI
IC 603	PD4504B
IC 604	NJM2068MD
IC 605	XRA6288FS
IC 701	PA2023A
IC 751	TA2050S
IC 752	PA0051AM
Q 250	2SC2712
Q 251	2SA1162
Q 455	DTC144EK
Q 456	DTC323TK
Q 501 509 510	2SC2712
Q 502	2SK208
Q 505	2SC3098
Q 506	2SC3295
Q 507 704	2SC2712
Q 511 512	DTC143TK
Q 601 603 606 707 709 712 753	DTC124EK
Q 602 751	DTA114EK
Q 604	2SD1189
Q 605 703 706 708 711 752	2SA1162
Q 607 608 609	DTA144EK
Q 610	DTA144EK
Q 611 713	DTA114EK
Q 702	2SD1760FS
Q 754	DTC124EK
D 251 252 253 601	MA110-1A
D 460	HZS2ALL
D 501	MA3027H
D 502 705 710	MA151WK-MT
D 602 603	MA151K-MH
D 604	MA3062H
D 702 708	ERA15-02VH
D 703	MA3062H
D 704	MA3082L
D 707	MA3061L
L 501 601 602 603 604 751 Inductor	LCTB1R0K2125
L 502 Ferri-Inductor	CTF-157
L 605 Inductor	LCTB1R0K2125

Circuit Symbol & No.	Part Name	Part No.
TH 601	Thermistor	CCX1025
X 501	Crystal Resonator 4.500MHz	CSS1011
X 601	Ceramic Resonator 6.291456MHz	CSS1303
X 602	Ceramic Resonator 4.194MHz	CSS1071
	Tuner Unit	CWE1376
BZ 601	Buzzer	CPV1011

RESISTORS

| | | |

=====Circuit Symbol & No.	Part Name=====	Part No.

Key Board Unit
Consists of
- Key Board P.C.Board
- Left Switch P.C.Board

Unit Number : CWM385
Unit Name : Key Board Unit

MISCELLANEOUS

IC 901	(MSC5301B-02GS-V1K)		GGC1055
IC 902			BX-1393
Q 901 902			DTC114TK
D 901 902 903 904 905		LED	CL170YGCD
D 906 907 908 909 910		LED	CL170YGCD
D 911 912 914		LED	CL176YGCD
D 913		LED	PRPY1201W
L 901		Inductor	LCTB150K2125
S 901 902 903 904 905		Switch	CSG1041
S 906 907 908 909 910		Switch	CSG1041
S 911 912 913 914 915		Switch	CSG1041
S 916 917 918 919 920		Switch	CSG1041
S 921 923 925 926 927		Switch	CSG1041
S 922		Switch	CSG1049
S 928 929 930		Switch	CSG1041
IL 901 902 903 904 905		Lamp 40mA/14V	CEL1341
EL 901		EL	CEL1352
LCD901		LCD	CAW1257

RESISTORS

R 901 908 915 922 929		RS1/10S472J
R 902 909 916 923 930		RS1/10S821J
R 903 910 917 924 931		RS1/10S122J
R 904 911 918 925 932		RS1/10S182J
R 905 912 919 926 933		RS1/10S302J
R 906 913 920 927 934		RS1/10S622J
R 907 914 921 928 935 949		RS1/10S223J
R 936 937 938 939 946		RS1/10S153J
R 940 941 942 943 944 945		RS1/10S102J
R 947		RS1/4S221J
R 948 954		RS1/4S331J
R 950		RS1/10S470J
R 951		RS1/10S473J
R 953		RS1/4S331J
R 962 965		RS1/10S0R0J

CAPACITORS

C 901 904		CSZS100M6R3
C 902 903 905		CKSQYB103K50

Unit Number : CWM3931
Unit Name : Switch Unit

S 924 931	Switch (OPEN/CLOSE,RESET)	CSG-212
IL 908	Lamp 40mA/14V	CEL1341

Unit Number :
Unit Name : Drive Assy

S 998 999	Switch (CLOSE,OPEN)	CSN1022
M 1	Motor	CXM1085

Unit Number : CWE1372
Unit Name : Tuner Unit

MISCELLANEOUS

IC 1		PA2021B
IC 2		PA2022A
Q 1		3SK195
Q 2 202		2SC2712
Q 3		DTC124EU

=====Circuit Symbol & No.	Part Name=====	Part No.
Q 51		DTC124TU
Q 52		2SC4207
Q 152		XP4601PA
Q 201		2SK435
D 1		1SV172
D 2 3 4		KV1410
D 5		MA151WK-MT
D 6 151 202		MA157-MR
D 201		MA157-MR
D 203		SVC203CP
L 1	Inductor	LCTBR12K2125
L 2 52	Ferri-Inductor	LAU150K
L 51	Ferri-Inductor	LAU2R2K
L 201	Ferri-Inductor	LAU4R7K
L 202	Coil1mH	CTF1026
L 203	Inductor	LAU390K
L 204	Ferri-Inductor	LAU680K
L 205	Ferri-Inductor	LAU330K
L 206	Inductor	CTF1198
T 1	Coil	CTC1078
T 2	Coil	CTE1077
T 3	Coil	CTC1077
T 4	Coil	CTC1079
T 51	Coil	CTC1119
T 202	Coil	CTB1103
T 203	Coil	CTE1078
T 204	Coil	CTE1085
T 205	Coil	CTE1086
CF 1 51 52		CTF1290
CF 201	Ceramic Filter	CTF1291
CF 202		CTF1300
X 151		CSS1308
X 201	Crystal Resonator	CSS1111
VR 51	Semi-fixed 22kΩ(B)	CCP1208
VR 52	Semi-fixed 68kΩ(B)	CCP1211
VR 151	Semi-fixed 10kΩ(B)	CCP1206
VR 152	Semi-fixed 22kΩ(B)	CCP1208
AR 1	Capacitor with Discharge Gap	DSP-201M

RESISTORS

R 1		RS1/16S223J
R 2		RS1/16S271J
R 3 10 16 18 20 103		RS1/16S223J
R 4		RS1/16S0R0J
R 6		RS1/16S680J
R 7 14		RS1/16S563J
R 8		RS1/16S152J
R 9		RS1/16S473J
R 11		RS1/16S474J
R 12		RS1/16S123J
R 13 15 217		RS1/16S563J
R 17 206		RS1/16S102J
R 21 22		RS1/16S560J
R 51		RS1/16S391J
R 52		RS1/16S182J
R 53		RS1/16S751J
R 54 158		RS1/16S393J
R 55 157		RS1/16S682J
R 56		RS1/16S332J
R 58 203		RS1/16S102J
R 72 74		RS1/16S391J
R 73		RS1/16S681J
R 101 164		RS1/16S224J
R 102 104 209 222		RS1/16S822J
R 151 152		RS1/16S272J

=====Circuit Symbol & No.	Part Name=====	Part No.
R 153 154 155 202		RS1/16S103J
R 156		RS1/16S153J
R 159 216		RS1/16S103J
R 160 161 207		RS1/16S225J
R 162 221		RS1/16S473J
R 163		RS1/16S222J
R 204 213		RS1/16S222J
R 205		RS1/16S823J
R 208		RS1/16S752J
R 214 218		RS1/16S333J
R 215		RS1/16S330J
R 220		RS1/16S100J
CAPACITORS		
C 1		CCSRCH220J50
C 2		CCSRCH390J50
C 3 55 101 102 154 163 203 210 219 220		CKSQYB473K16
C 4		CCSRTH070D50
C 5 53		CCSRCH270J50
C 6		CKSRYB222K50
C 7		CCSRCH040C50
C 8 105		CKSRYB222K50
C 9 16		CCSRCH470J50
C 10		CCSRSH090D50
C 11		CKSRYB223K25
C 12		CCSRCH070D50
C 13		CCSRCH070D50
C 14 19 20 21 62 71 74 201 207 209		CKSRYB103K50
C 15 22 65 151 164 227		CKSQYB104K25
C 17		CCSRRH100D50
C 18		CCSRRH080D50
C 23		CEA3R3M50LL
C 24 29 73 106 213 236		CKSRYB223K25
C 25		CKSRYB682K50
C 26 28 231		CEA101M16LL
C 51 52 166 223		CKSRYB103K50
C 54		CCSRCH270J50
C 56 162 211		CEA010M50LL
C 57 64 66 237		CCSRCH101J50
C 60 155		CKSYB474K16
C 61		CEAR22M50LL
C 63 161		CKSQYB104K25
C 103		CKSQYB222K50
C 104 226		CEA4R7M35LL
C 152 163		CKSRYB333K16
C 156		CKSQYB333K25
C 158 212		CEA100M16LL
C 159		CKSRYB331K50
C 160		CKSYB105K16
C 165		CSZS2R2M10
C 202 233		CKSRYB332K50
C 204		CCSRCH120J50
C 205		CCSRCH560J50
C 206 221		CCSRCH680J50
C 208		CEA470M10LL
C 214 230		CKSRYB472K50
C 215 228		CKSRYB103K50
C 216		CCSRCH100D50
C 217		CCSRCH221J50
C 218 234		CEA220M16LL
C 222		CCSRCH150J50
C 224		CCSRUJ181J50
C 225 235		CKSQYB472K16
C 229		CEAR68M50LL
C 232		CCSRCH390J50

=====Circuit Symbol & No.	Part Name=====	Part No.
Unit Number : CWX1715		
Unit Name : Control Unit		
MISCELLANEOUS		
IC 351		UPC1347GS
IC 601		UPD6374AGH
IC 602		XRA4558F-P
IC 651		PA3026
IC 653		XRA4558F-P
IC 701		UPD6375GC
IC 751		PD6267A
IC 752		MB3854PF
Q 351		2SB1260
Q 601		2SB709A
Q 651		2SB1184F5
Q 652		2SB1184F5
Q 654		DTC114EK
Q 704		2SB709A
Q 752		DTA114EK
Q 753		DTA114EK
Q 754		DTC114EK
Q 755		2SD1760F5
Q 756		2SD1030
D 651		SC016-2
D 652		SC016-2
D 757		HZM6R8NB2
D 758		MA151A-MA
TH 752	Thermistor	CCX1015
X 751	Ceramic Resonator	CSS1084
VR 351	Semi-fixed 22kΩ (B)	CCP1183
VR 352 355 356	Semi-fixed 47kΩ (B)	CCP1185
VR 353 354	Semi-fixed 2.2kΩ (B)	CCP1177
	Checker Chip	CKF1031
RESISTORS		
R 351		RS1/8S100J
R 353		RS1/16S623J
R 354 757 779		RS1/16S473J
R 355		RS1/16S122J
R 356		RS1/16S683J
R 357		RS1/16S683J
R 358		RS1/16S332J
R 359		RS1/16S332J
R 360		RS1/16S684J
R 361		RS1/16S163J
R 362		RS1/8S120J
R 369		RS1/16S103J
R 375 377 713		RS1/16S102J
R 379		RS1/16S513J
R 380		RS1/16S104J
R 381		RS1/16S133J
R 382		RS1/16S133J
R 606		RS1/16S224J
R 607 664 753 755		RS1/16S103J
R 609		RS1/16S102J
R 611 612 665		RS1/16S102J
R 613		RS1/16S102J
R 614		RS1/16S472J
R 615		RS1/16S472J
R 616		RS1/16S102J
R 617		RS1/8S0R0J
R 618		RS1/8S103J
R 619 620		RS1/8S102J
R 662		RS1/16S162J
R 654 722		RS1/16S162J

Circuit Symbol & No.	Part Name	Part No.
R 655		RS1/16S183J
R 656		RS1/16S362J
R 657		RS1/16S163J
R 663		RS1/10S181J
R 669 797		RS1/16S103J
R 670		RS1/10S151J
R 676		RS1/16S683J
R 679		RS1/16S102J
R 694		RS1/16S102J
R 709 710		RS1/16S0R0J
R 711 712 764		RS1/16S102J
R 721		RS1/16S472J
R 724		RS1/10S1R0J
R 725		RS1/16S472J
R 738 798		RS1/16S0R0J
R 751		RS1/10S1R0J
R 752		RS1/16S183J
R 754 776		RS1/16S472J
R 756 771 772 773		RS1/16S222J
R 758		RS1/16S224J
R 765 793		RS1/16S102J
R 766		RS1/16S473J
R 767 768		RS1/16S334J
R 769 770		RS1/16S104J
R 774		RS1/16S103J
R 775		RS1/16S104J
R 778		RS1/16S103J
R 780		RS1/16S104J
R 781 782		RS1/16S362J
R 783 784 785 786 787		RS1/16S681J
R 788		RS1/16S102J
R 791 792		RS1/B5751J
R 794		RS1/16S151J
R 799		RS1/10S1R5J
CAPACITORS		
C 351		CEV470M16
C 352		CKSQYB104K16
C 353		CEV101M6R3
C 354 355		CSZS9R7M10
C 357 359 366		CKSRYB102K50
C 358		CKSRYB331K50
C 360		CKSRYB271K50
C 361		CCSRCH220J50
C 601		CKSRYB222K50
C 603		CKSRYB331K50
C 604 606 652		CKSYB224K16
C 605		CKSQYB103K25
C 607 654 759		CKSYB224K16
C 608		CSZS010M16
C 609 610 761		CEV100M16
C 611 671		CKSRYB103K50
C 653	220 μF/10V	CCH1148
C 655		CKSRYB391K50
C 658	220 μF/10V	CCH1148
C 665		CEV101M10
C 666		CKSQYB102K50
C 670		CKSQYB272K50
C 672		CKSQYB333K25
C 716		CEV100M16
C 730		CCSRCH470J50
C 751 752		CCSRCH221J50
C 753 754 755		CCSRCH221J50
C 756		CKSRYB472K50

Circuit Symbol & No.	Part Name	Part No.
Unit Number :		
Unit Name : Switch P.C.Board		
D 1 2 3 4		GL4800
M 1	Motor Unit(Spindle)	CXA6526
M 2	Motor Unit(Carriage)	CXA6549
M 3	Motor Unit(Loading)	CXA4267
S 1 2	Switch(Home,Clamp)	CSN1012
Unit Number :		
Unit Name : Detector P.C.Board		
P 1 2 3 4	Photo Transistor	PT4800
Unit Number :CWM3794		
Unit Name :Deck Unit		
MISCELLANEOUS		
IC 251		HA12178-01
IC 351		PA2020A
Q 271		2SC4116
Q 351		2SB1280
Q 352		2SC4102
D 351		MA141K-MH
VR 301 302	Semi-fixed 33kΩ (B)	CCP1130
RESISTORS		
R 251 252 253 254		RS1/10S243J
R 255 256		RS1/10S181J
R 257 258		RS1/10S183J
R 259 260		RS1/16S133J
R 261 262		RS1/10S274J
R 271		RS1/16S183J
R 272 273 322		RS1/10S223J
R 274		RS1/10S103J
R 275		RS1/16S473J
R 276 278		RS1/10S104J
R 277		RS1/10S224J
R 279 280		RS1/10S223J
R 301 302		RS1/16S223J
R 303 304		RS1/10S561J
R 321		RS1/10S223J
R 351 352		RS1/16S102J
R 353 354		RS1/10S102J
R 355		RS1/10S274J
R 356		RS1/10S202J
R 357		RS1/10S472J
R 358 359		RS1/10S103J
R 360		RS1/16S102J
R 361		RS1/10S822J
R 401		RS1/10S273J
R 402		RS1/10S223J
R 403 405		RS1/10S274J
R 404		RS1/10S823J
CAPACITORS		
C 251 252 253 254		CCSQCH331J50
C 255 256 353		CKSQYB103K50
C 257 258		CEVNP010M50
C 271		CEV010M50
C 272		CKSQYB104K25
C 301 302		CEVNPR47M50
C 303 304 305		CKSQYB222J50
C 306 307 308		CKSQYB222J50
C 309 310		CKSQYB104K16
C 311 312		CKSQYB104K16

Circuit Symbol & No.	Part Name	Part No.
C 322		CEV100M16
C 351		CKSYB224K25
C 352		CKSQYB392K50
C 354		CKSQYB473K50
C 355		CKSYB104K50
C 356		CKSQYB103K50
C 401		CKSQYB182K50
C 402		CKSQYB822K50
C 403		CKSQYB333K50
C 404		CKSQYB471K50

Unit Number :ENP1120
Unit Name :P.C.Board Uint

MISCELLANEOUS

S 1 2	Switch		ESN1013
EGN 1 2	Photo-Interrupter		NJL5181KA-F10
R 1			RD1/8HM271J
R 2			RD1/8HM681J

Miscellaneous Parts List

S 1	Switch (CASSETTE SENSE)	CSN-086
IL 1	Lamp 40mA/14V	CEL1370
	PU Unit	CGY1020
S 751 752	Switch(Open,Close)	CSN1022
EGN 3	Photo-Interrupter	EGN1002
M 1	Motor Unit (MAIN)	EXA1334
M 2	Motor Unit (SUB)	EXA1279
HD 1	Head Assy	EXA1333

• The FH-P90/ES Parts List enumerates the parts which differ from those for the FH-P95/UC only. The parts other than those enumerated in the FH-P90/ES Parts List are identical with those in the FH-P95/UC Parts List,to which you are requested to refer,accordingly. The FH-P95/UC Parts List is given on page 1-42.

DSP Amp Unit

Circuit Symbol & No.	FH-P95/UC Part No.	FH-P90/ES Part No.
IC1501,1502	·····	NJM2068MD
Q1501	·····	DTC343TK
L1851,1852,1853,1854	·····	LCTB2R7K2125
R1501,1502,1505	·····	RS1/10S103J
R1503,1504,1513	·····	RS1/10S223J
R1506,1511,1512	·····	RS1/10S103J
R1507,1508	RS1/10S0R0J	·····
R1509	·····	RS1/10S122J
R1514	·····	RS1/10S223J
R1515,1516	·····	RS1/10S103J
R1517,1518	RS1/10S0R0J	·····
R1521	·····	RS1/10S224J
R1522,1523,1524	·····	RS1/10S224J
R1525,1526,1527,1528	·····	RS1/10S223J
R1529	·····	RS1/10S561J
R1861	·····	RS1/10S0R0J
R1862	RS1/10S0R0J	·····
R1863,1864,1865,1866	RS1/10S0R0J	·····
C1501,1502	·····	CEA4R7M35LL
C1503,1504	·····	CCSQCH330J50
C1506	·····	CEA220M6R3LL
C1508	·····	CKSYF224Z50
C1511,1512	·····	CEA4R7M35LL
C1513,1514	·····	CCSQCH330J50

Deck Tuner Unit

Circuit Symbol & No.	FH-P95/UC Part No.	FH-P90/ES Part No.
IC451	·····	M5282FP
Q451	·····	2SD1757K
Q453	·····	2SC2712
D451	·····	MA153-MC
R453	RS1/10S0R0J	RS1/10S104J
R455	·····	RS1/10S104J
R457	·····	RS1/10S222J
R459	·····	RS1/10S471J
R461	·····	RS1/10S473J
R463	·····	RS1/10S563J
R465	·····	RS1/10S122J
R467	·····	RS1/10S102J
R468	·····	RS1/10S0R0J
R469	·····	RS1/10S561J
R602	RS1/10S473J	·····
R604	·····	RS1/10S473J
C453	·····	CEA470M10LL
C455	·····	CKSQYB102K50
C457	·····	CEA330M10LL
C458,459	·····	CEA100M16LL
C460	·····	CEA0R1M50LL
C461	·····	CEA100M10NPLL
C462	·····	CEA2R2M50LL

Key Board Unit

Circuit Symbol & No.	FH-P95/UC Part No.	FH-P90/ES Part No.
LCD901	CAW1257	CAW1252

5. SPECIFICATIONS

● **FH-P95/UC**

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format
(Sampling frequency) ..... 44.1 kHz
(Number of quantization bits) ..... 16 bit linear
Frequency characteristics ..... 5 — 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IHF-A network)
Dynamic range ..... 90 dB (1 kHz)
Number of channels ..... 2 (stereo)

Tape player

Tape ..... Compact cassette tape (C-30 — C-90)
Tape speed 4.76 cm/sec. (±0.14 cm/sec., -0.05 cm/sec.)
Fast forward/rewind time
..... Approx. 100 sec. for C-60
Wow & flutter ..... 0.09% (WRMS)
Frequency response
..... Metal: 30 — 22,000 Hz (±3 dB)
Stereo separation ..... 45 dB
Signal-to-noise ratio
..... Metal: Dolby C NR IN: 73 dB (IHF-A network)
Dolby B NR IN: 67 dB (IHF-A network)
Dolby NR OUT: 61 dB (IHF-A network)

FM tuner

Frequency range ..... 87.9 — 107.9 MHz
Usable sensitivity ..... 11 dBf (0.8μV/75Ω, mono)
50 dB quieting sensitivity
..... 16 dBf (1.1μV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IHF-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 — 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)
Selectivity ..... 70 dB (2ACA) (±400 kHz)
Three-signal intermodulation (desire signal level)
..... 50 dBf (two undesire signal level: 110 dBf)

AM tuner

Frequency range ..... 530 — 1,710 kHz
Usable sensitivity ..... 18μV (25 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (±10 kHz)

Equalizer amp common section

Tone controls (parametric)
(Bass) Frequency .... 80 Hz, 125 Hz, 200 Hz, 315 Hz
(Treble) Frequency
..... 12.5 kHz, 8 kHz, 5 kHz, 3.15 kHz
Equalization range ..... ±12 dB
3 band parametric EQ
Frequency ..... 20 kHz, 12.5 kHz, 8 kHz, 5 kHz, 3.2 kHz, 2 kHz, 1.3 kHz, 800 Hz, 500 Hz, 315 Hz, 200 Hz, 125 Hz, 80 Hz, 50 Hz, 31.5 Hz, 20 Hz
Equalization range ..... ±12 dB
Maximum current consumption ..... 7.0 A
Maximum power output ..... 30 W × 4 (EIAJ)
Continuous power output ..... 14 W × 4 (1 kHz, 1%)
Subwoofer ..... Cut off frequency: 50 Hz/80 Hz/125 Hz
Cut off slope : −18 dB/OCT
Gain : ±12 dB
Loudness contour
..... +10 dB (100 Hz), +7 dB (10 kHz)
Load impedance ..... 4 Ω (4 — 8 Ω allowable)
Nominal output level/
output impedance (pre out) ..... 500 mV/1 kΩ
Power source
..... 14.4 V DC (10.8 — 15.6 V allowable)
Grounding system ..... Negative type
Dimensions
(Chassis) ..... 178 (W) × 100 (H) × 155 (D) mm
[7 (W) × 4 (H) × 6-1/8 (D) in.]
(nose) ..... 170 (W) × 95 (H) × 14 (D) mm
[6-3/4 (W) × 3-3/4 (H) × 1/2 (D) in.]
Weight ..... 2.6 kg (5.7 lbs.)

> These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo Manufacturers.

> The specifications and design are subject to change without prior notice. Products purchased may differ in details from illustrations in this manual.

● FH-P90/ES

CD player

System ..... Compact disc audio system
Usable discs ..... Compact disc
Signal format
(Sampling frequency) ..... 44.1 kHz
(Number of quantization bits) ..... 16 bit linear
Frequency characteristics ..... 5 — 20,000 Hz (±1 dB)
Signal-to-noise ratio ..... 94 dB (1 kHz) (IEC-A network)
Dynamic range ..... 90 dB (1 kHz)
Number of channels ..... 2 (stereo)

Tape player

Tape ..... Compact cassette tape (C-30 — C-90)
Tape speed 4.76 cm/sec. (+0.14 cm/sec., -0.05 cm/sec.)
Fast forward/rewind time
..... Approx. 100 sec. for C-60
Wow & flutter ..... 0.09% (WRMS)
Frequency response
..... Metal: 30 — 22,000 Hz (±3dB)
Stereo separation ..... 45 dB
Signal-to-noise ratio
..... Metal: Dolby C NR IN: 73 dB (IEC-A network)
Dolby B NR IN: 67 dB (IEC-A network)
Dolby NR OUT: 61 dB (IEC-A network)

FM tuner

Frequency range ..... 87.5 — 108 MHz
Usable sensitivity ..... 11 dBf (0.8 µV/75 Ω, mono)
50 dB quieting sensitivity
..... 16 dBf (1.1 µV/75 Ω, mono)
Signal-to-noise ratio ..... 70 dB (IEC-A network)
Distortion ..... 0.3% (at 65 dBf, 1 kHz, stereo)
Frequency response ..... 30 — 15,000 Hz (±3 dB)
Stereo separation ..... 40 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range ..... 530 — 1,710 kHz (10 kHz)
531 — 1,602 kHz (9 kHz)
Usable sensitivity ..... 18 µV (25 dB) (S/N: 20 dB)
Selectivity ..... 50 dB (±10 kHz)
50 dB (±9 kHz)

Equalizer amp common section

Tone controls (parametric)
(Bass) Frequency .... 80 Hz, 125 Hz, 200 Hz, 315 Hz
(Treble) Frequency
..... 12.5 kHz, 8 kHz, 5 kHz, 3.15 kHz
Equalization range ..... ±12 dB
3 band parametric EQ
Frequency ..... 20 kHz, 12.5 kHz, 8 kHz, 5 kHz, 3.2 kHz, 2 kHz, 1.3 kHz, 800 Hz, 500 Hz, 315 Hz, 200 Hz, 125 Hz, 80 Hz, 50 Hz, 31.5 Hz, 20 Hz
Equalization range ..... ±12 dB
Maximum current consumption ..... 7.0 A
Maximum power output ..... 30 W × 4 (EIAJ)
Continuous power output ..... 14 W × 4 (1 kHz, 1%)
Subwoofer ..... Cut off frequency: 50 Hz/80 Hz/125 Hz
Cut off slope : −18 dB/OCT
Gain : ±12 dB
Loudness contour ..... +10 dB (100 Hz), +7 dB (10 kHz)
Load impedance ..... 4 Ω (4 — 8 Ω allowable)
Nominal output level/
output impedance (pre out) ..... 500 mV/1 kΩ
Power source ..... 14.4 V DC (10.8 — 15.6 V allowable)
Grounding system ..... Negative type
Dimensions
(chassis) ..... 178 (W) × 100 (H) × 155 (D) mm
(nose) ..... 170 (W) × 95 (H) × 14 (D) mm
Weight ..... 2.6 kg

> The specifications and design are subject to change without prior notice. Products purchased may differ in details from illustrations in this manual.

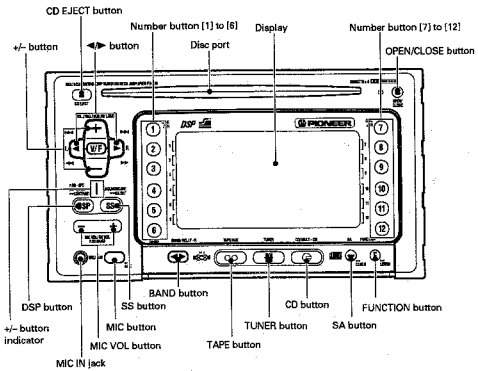
6. OPERATIONS AND CONNECTION

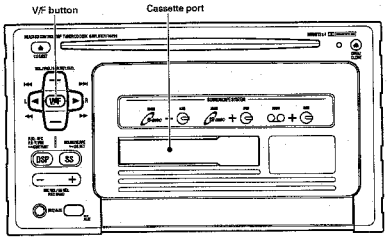
How to use this manual

Names and parts

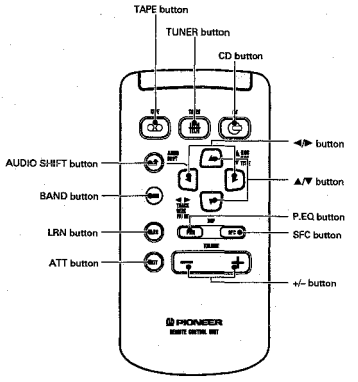
The positions and names of the operating buttons of this unit are as follows:

❖ Main unit





❖ Remote control unit



Symbols

The following three symbols are used in this manual.

CAUTION — never do this.
This symbol indicates dangerous action which must be avoided.

Note — follow the instructions carefully.
This symbol indicates action which can cause the equipment to fail if it is wrongly performed.

Additional information.
This symbol indicates that further information is available, for example on limits specifications, cautions on operation, and techniques needed to make full use of the unit.

Operations able to be performed by the remote control unit (remote control symbol)

Some operations of this unit can also be performed by the remote control unit. For such operations, a remote control symbol is indicated in this manual.

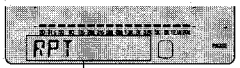
Please read the following before using this unit

Supplied CD software

The CD software supplied with this unit contains sound effect to be used for the SOUNDSCAPE function.

Scroll display

The display of this unit uses scroll display. When a button is pressed for an operation, information for that operation will scroll from the right to left on the scroll message section on the display. (For example, when the number button [9] is pressed for repeat mode during built-in CD playback, "RPT" will be shown on the scroll message section.)



Scroll message section

⚠ CAUTION

Precautions during driving

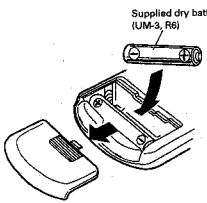
- **The driver must not read the scroll message during driving. This will disturb driving operation and is very dangerous.**

When the car battery is removed

Removing the car battery resets all memory settings (clock setting, radio presetting, etc.) stored in this unit. Set the memory again after replacing the car battery.

Before using the remote control unit

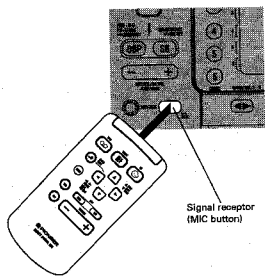
Loading the batteries



To prevent leakage or explosion

- **Be sure that the batteries are loaded with the positive (+) and negative (–) terminals the right way round.**
- **Do not mix new and old batteries.**
- **Do not mix different types of batteries. Even if the shape is the same, the voltage may be different.**
- **Remove the batteries from the remote control unit when it is not used for a long time.**
- **If leakage has occurred, completely wipe off the liquid from the battery compartment, then load new batteries.**

Operating the remote control unit



- The remote control unit may not operate when it is pointed towards your feet or the seat, because signals do not reach the signal receptor of this unit. Always point the remote control unit towards the signal receptor.
- As the remote control operation uses infrared light, the remote control unit may not operate if the signal receptor is hit by direct sunlight. In such a case, shield the signal receptor from direct sunlight.
- Replace the batteries when you feel the effect of the remote control unit has become low.

Caution for high temperature

- **Leaving the remote control unit in places exposed to direct sunlight for a long time may cause deformation, discoloration or malfunction because of high temperature. Keep the remote control unit in a safe place protected from direct sunlight.**

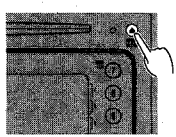
Front panel

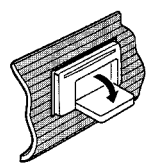
Using open-and-close display

In order to provide a learger, more legible display, the main unit is organized so that the display can be opened and closed. Opening the display, the cassette port is located there.

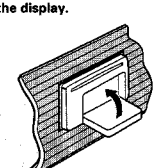
❖ Opening and closing the display

Press the OPEN/CLOSE button opens the display.





Pressing the button again closes the display.



Caution on opening and closing the display

- **Do not place objects on the display or forcible press down when it is open, as this may cause malfunction.**
- **Be careful not to trap your fingers or other objects into the display during the opening and closing operations.**

Connecting external equipment to this unit

Connecting external equipment (an RCA-output video deck or DAT) to this unit allows sound from the external equipment to be output.
The external equipment can be connected to this unit by the following two methods:

❖ Connecting the RCA TO IP-BUS INTERCONNECTOR [CD-RB10] to the IP-BUS IN jack located in the rear panel of this unit

> For details on connecting the remote control unit, refer to the RCA TO IP-BUS INTERCONNECTOR manual.
> Set AUX to ON by referring to "AUX (external input) setting" explained below.
> To output sound from the external equipment, switch the sound source to "AUX".

❖ Using the MIC IN jack located in the front panel of this unit

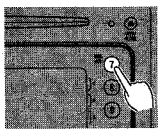
> The external equipment can be easily connected, even after installation of this unit to the vehicle.

AUX (external input) setting

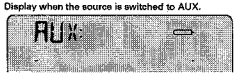
Set AUX to ON (initial setting is OFF) when a product that cannot be directly controlled by this unit (external equipment such as RCA output video or DAT) is connected to the IP-BUS IN (blue) jack of this unit. Otherwise, the sound source does not switch to AUX.

To switch the AUX setting ON/OFF, turn the ignition switch of the vehicle to ACC or ON while holding down the number button [7].

> The display shows "AUX" when the sound source is changed to AUX.



Display when the source is switched to AUX.



When no external equipment is connected

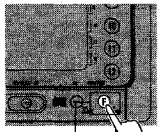
> Leave the AUX setting in the OFF position.

Number buttons [7] to [12]

The number buttons [7] to [12] have two functions. The functions switch ON/OFF every time the FUNCTION button is pressed.

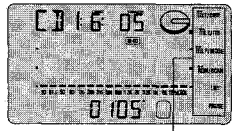
Press the FUNCTION button.

The functions switch every time the button is pressed.



ON (Lights in yellow) ◄► OFF (Lights in orange)

Example: Multi-CD operation display



ON (Displays key guide) ◄► OFF (Key guide off)

The yellow FUNCTION button indicator lights up (ON).

Each of the number buttons [7] to [12] has an independent function. The various functions are displayed on the display (key guide).

The orange FUNCTION button indicator lights up (OFF).

For the radio

The number buttons [7] to [12] can be used for presetting broadcasting stations (FM1 band only).

For the multi-CD player

The number buttons [7] to [12] can be used for the disc number search operation (only when using the 12-disc multi-CD player).

Adjusting the contrast of the display

If the display is difficult to see, adjust the contrast (proportion of bright and dark portions).

⚠ CAUTION

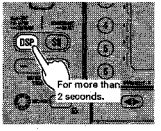
To prevent accidents

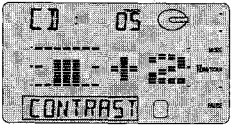
- **So as not to cause a traffic accident, do not attempt to adjust the contrast while driving.**

1. **Switch the power of this unit ON.**

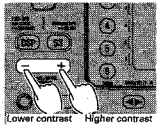
2. **Press the DSP button for more than 2 seconds to change to the contrast adjustment display.**

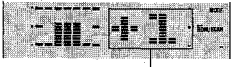
   > The contrast adjustment display will be canceled if no operation is made for more than 8 seconds. Perform the adjustment operation within 8 seconds after entering contrast adjustment mode.





3. **Press the MIC VOL button to adjust the contrast.**





4. **When finished making the settings, press the DSP button.**

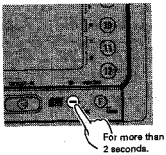
The contrast can also be adjusted during the demonstration display

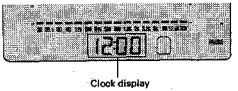
Using the clock

Changing to the clock display

The display can be switched to clock display when the power of this unit is ON.

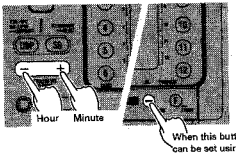
1. **Switch the power of this unit ON.**
   [See "Switching the sound sources".]
2. **The clock display switches ON/OFF every time the SA button is pressed for more than 2 seconds.**

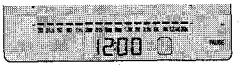




Adjusting the clock

1. **Switch the power of this unit ON and change to the clock display.**
   [See the previous paragraph.]
2. **Adjusting the clock.**





Adjust the "hours".

Hold down the SA button and press the (–) side of the MIC VOL button to adjust the hours.
Holding down the (–) side of the MIC VOL button continuously forward the hours.

Adjust the "minutes".

Hold down the SA button and press the (+) side of the MIC VOL button to adjust the minutes.
Holding down the (+) side of the MIC VOL button continuously forward the minutes.
> Although the seconds are not displayed, the time starts from 0 second when the SA button is released.

Time display

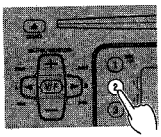
> If you press another button while the time is displayed, the time display is temporarily shut off and if no button is pressed after approximately 25 seconds, the time display is restored.

Changing the tuning steps

Setting the AM tuning step

The tuning step of the AM band can be set to 10 kHz or 9 kHz. (The initial setting is 10 kHz.) When the tunre is used outside of North, Central, or South Ametica, set the tuning step to 9 kHz.

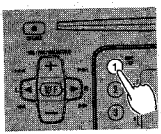
1. **Turn the ignition key OFF.**
2. **Each time you turn the ignition key from its OFF to its ON position while continually pressing the number button [2], the AM tuning step is switched between 10 kHz and 9 kHz.**
   > When the tuning step is 10 kHz, the frequency range will be from 530 kHz to 1,710 kHz. When it is 9 kHz, the frequency range will be from 531 kHz to 1,602 kHz.



Setting the FM tuning step

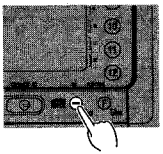
The seek tuning step of the FM band can be set to 100 kHz or 50 kHz. (The initial setting is 100 kHz.)

1. **Turn the ignition key OFF.**
2. **Each time you turn the ignition key from its OFF to its ON position while continually pressing the number button [1], the seek tuning step of the FM band is switched between 100 kHz and 50 kHz.**



Switching display modes

As shown in the figure below, the spectrum analyzer indicator on the display changes in sequence every time the SA button is pressed.



Peak bound

The sound intensity of each frequency is shown as height.

Symmetric display (1)

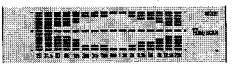
The sound intensity of each frequency is shown as width.

LR independent peak bound

The peak bound for the right speaker is shown separately from that for the left speaker.

Symmetric display (2)

The same pattern as with symmetric display (1) is shown in reversed bright and dark portions.



Safety snow

Shows patterns as if snow is falling. See the next page for more detail.

Winding road

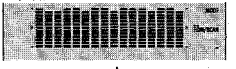
Shows patterns as if the spectrum analyzer indicator falls from the above. The speed changes according to the sound intensity.

❖ Safety snow

The safety snow display shows patterns as if snow is falling in the spectrum analyzer indicator (Display ①).
When the snow fills up the indicator (Display ②), the number of fallen snow balls will be displayed (Display ③).
It takes 1 minute from the point when snow fall starts until the spectrum analyzer indicator is filled up with snow. Up to 99 snow balls will be counted. The safety snow display can be used as a timer.

Display ①

Display ②



Display ③

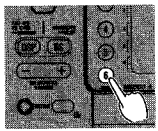
Timer

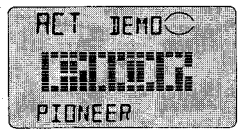
> The safety snow display can be used as a timer. However, the timer will be reset when the power of this unit is switched OFF or the display modes are changed. When another operation (e.g. volume adjustment) is performed during safety snow mode, the timer stops until completion of that operation.

Switching to the demonstration display

The demonstration display can be shown when the power of this unit is OFF.

1. **Switch the power of this unit OFF.**
   [See "Switching the sound source"]
2. **Press the number button [6] to start demonstration display.**
   To cancel the demonstration, press the button again.





Precautions when the car engine is stopped

- **Avoid using the demonstration function for a long time while the car engine is stopped. This may consume the car battery.**
- **If demonstration display is left on, once the source is OFF (the power is off), demonstration display begins automatically.**

Cellular MUTE function

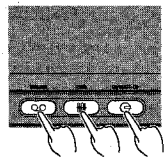
If the PIONEER car telephone is connected to your system, the sound volume of this unit automatically reduces while the telephone is used. The volume will automatically resume when the car telephone is switched OFF.

Switching the power ON

Switching the sound source

To change the sound sources in your system, perform the following operation.

Press a corresponding button to switch a sound source ON/OFF.



TAPE button: Tape → AUX* (external input) → Power OFF → Tape

TUNER button: Radio (FM/AM) → Power OFF → Radio (FM/AM)

CD button: Built-in CD player → Multi-CD player → Power OFF → Built-in CD player

* The sound source does not change to AUX (external input) by the remote control unit.

AUX (external input)

> When an external equipment is used, sound from that external equipment can be output by changing the sound source to AUX. (In such a case, operate the functions at the external equipment.)

The sound source cannot be switched in these cases

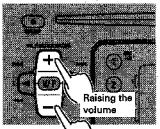
> The sound source is not connected to the system.
> The cassette tape is not loaded on this unit.
> The magazine is not installed in the multi-CD player.
> The CD is not loaded on this unit.
> AUX (external input) has been set to OFF.

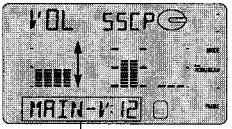
Volume adjustment

Volume adjustment

Press the +/– button.

Holding down the button allows continuous adjustment to be made.





⚠ CAUTION

Keep the volume to moderate level

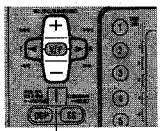
- **For safe driving, keep the sound volume to moderate level so that you can hear the sound outside the car.**

Precautions for low battery

- **Do not use this unit at high sound level for a long time when the car engine is turned OFF or during idling.**

❖ +/– button indicator

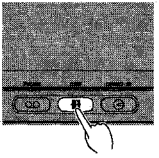
The +/– button indicator goes off when the +/– button is functioning for volume adjustment. The indicator lights up when the +/– button is used for other functions.

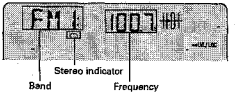


Listening to the radio

Switching the radio ON/OFF

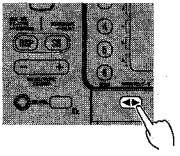
Press the TUNER button and change the sound source to the radio.

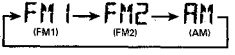




Selecting a band

The band changes in the following sequence every time the BAND button is pressed.





The FM frequency band

> The FM band is replicated into FM1 and FM2. This enables one memory button to store the reception frequencies for three radio stations. The reception frequency range is the same for bands 1 and 2.

Receiving stereo broadcasting

> Stereo indicator "◁▷" lights up on the display when the system receives FM stereo broadcasting.

Tuning in to a station

Broadcasting stations can be tuned in by two methods.

Seek tuning

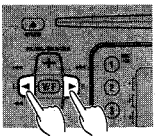
The system automatically tunes in to stations that have higher level than a specified intensity of radio wave.

Manual tuning

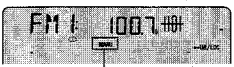
Stations can be selected by manually adjusting the frequency. Use this function when you want to tune in to a station that has too low level for seek tuning mode.

> Although the remote control unit cannot be used for switching between the two modes, it can be used for tuning in to stations.

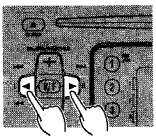
1. **Seek tuning mode switch to manual tuning mode and vice versa every time the ◄/► button is pressed at the same time.**



Press simultaneously.



2. **Press the ◄/► button to select a station.**



To lower frequencies To higher frequencies

During seek tuning

The system automatically tunes in to a station. To cancel seek tuning mode, press the button again during seek tuning.

During manual tuning

Holding down the button fast forwards the frequency.

Useful functions

The system has useful functions such as BSM (Best Stations Memory) and preset scan. BSM automatically stores broadcasting stations that are in good receiving condition during driving. Using preset scan allows you to store your favorite stations and call them in sequence. Try some of these useful functions to create your new car-audio life.

Listening to cassette tapes

Before listening to a cassette

Handling cassettes

- Keep cassettes away from magnets and other sources of magnetism.
- Do not leave cassettes in direct sunlight.
- When a cassette is not in use, do not leave it out, but return it to its box for storage.

Before inserting a cassette

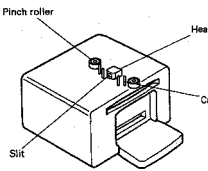
- Do not insert a cassette whose label is peeling or coming unstuck at any point. If the label catches in the mechanism, the cassette will not eject. Remove a peeling label completely before using a cassette.
- Do not use C-120 (120 min.) tapes. Because the tape is exceptionally thin it stretches, giving poor performance.

❖ Automatic tape head cleaning (auto head cleaning mechanism)

This unit incorporates an automatic tape head cleaning mechanism.
When the pate switches from side A to side B, the tape head cleaning lever moves onto the head, keeping the head free of dirt.

If the sound quality deteriorates

- If the heads become dirty, the sound quality will deteriorate and there will be sound dropouts and other imperfections in performance. If this happens, it is possible that some dirt is stuck to the head that the cleaning lever is unable to remove. In this case, the head must be cleaned manually.
- The head is located on the right side of the tape slot, approximately halfway between the front of the unit and the back.



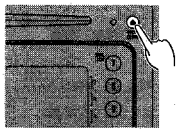
Caution when cleaning

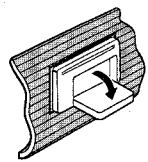
- Don't use metal or a magnet on the head. Never use tweezers or pliers wrapped with cotton or gauze. This can scratch the head.
- When using a cleaning tape, play it once on one side for normal cleaning. Excessive use of the cleaning tape will increase head wear. Be sure to read the cleaning tape instructions before use.

Cassette tape playback ON/OFF

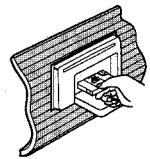
❖ Loading the cassette tape

1. **Press the OPEN/CLOSE button to open the display.**

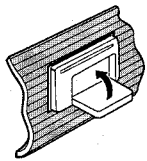




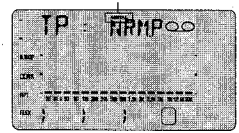
2. **Insert the cassette tape halfway.**



3. **The display automatically closes and the system starts playback.**



Metal tape indicator



When the cassette tape is loaded

> Playback of the cassette tape can be switched ON/OFF by pressing the TAPE button (Switching the sound source).

When an improper tape is loaded

> If a broken or entangled tape is loaded, the system does not start playback and switches the power OFF. In such a case, check the cassette tape.

Metal tape indicator (auto tape selector)

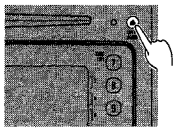
> When the cassette tape is loaded, the system automatically detects the tape type (metal/chromium dioxide or normal) and sets the playback equalizer to either 70 or 120 µs according to the tape type. When a metal or chromium dioxide tape is used, the "METAL" indicator lights up on the display.

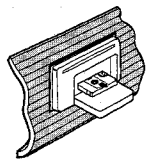
❖ Removing the cassette tape

⚠ **CAUTION**

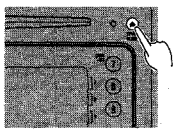
- **Leaving the display open may hinder safe driving. Keep the display closed under normal conditions.**

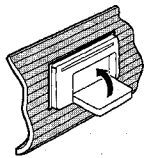
1. **Press the OPEN/CLOSE button to remove the cassette tape.**
   The display automatically opens and ejects the tape.





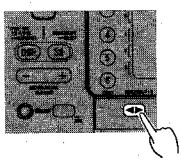
2. **Remove the cassette tape.**
3. **Press the OPEN/CLOSE button to close the display.**

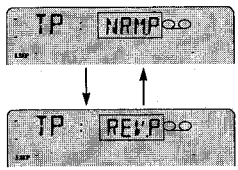




Switching between sides A and B (direction)

Pressing the BAND button switches between sides A and B.





Dolby NR system

Dolby-B NR and Dolby-C NR systems both reduce hiss noise from tapes.

> Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

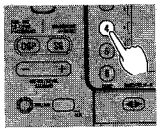
Dolby-B NR

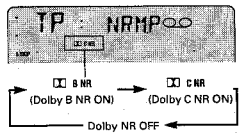
Turn the Dolby-B by NR ON while playing tapes recorded with Dolby-B NR ON.

Dolby-C NR

Turn the Dolby-C NR ON while playing tapes recorded with Dolby-C NR ON.

Dolby modes change as shown in the figure below every time the number button [4] is pressed.





Useful functions

Music search detects the beginning of a track. Blank skip automatically searches for the beginning of the next track when blank (containing no sound) continues for more than 12 seconds. Try some of these useful functions to create your new car-audio life.

Using the built-in CD player

Discs

Usable discs

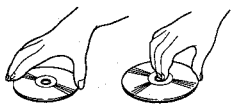
- Only use compact discs (optical digital audio discs) bearing the mark shown below.

COMPACT disc DIGITAL AUDIO

- Do not use cracked or warped discs.

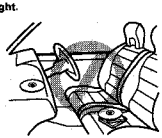
Handling

- Never touch the recorded surface when handling discs. Handle discs by carefully holding the outer edges or the edges of the hole and the outer edge.



- Do not affix paper or tape, and protect the disc from scratches.

- Do not store in places exposed to direct sunlight.



- If the recorded surface of the disc gets soiled, the sound quality may be reduced. To clean the disc, gently wipe the surface with a soft lint-free cloth, wiping from the center of the disc to the edge.

- Do not use record sprays or antistatic agents. Volatile chemicals such as benzine and thinner can also damage the surface of the disc and should not be used.

- To avoid warping, keep the discs in their cases.

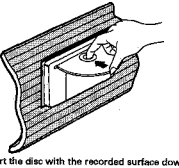
Built-in CD playback ON/OFF

❖ When no disc is Loaded

Before loading the disc

- **Confirm that no disc is loaded, then load the disc.**
- **Do not *insert two discs at a time. This will cause a malfunction.***
- **This unit is capable of playing back 8-cm CDs without an adapter. Do not use an adapter when loading an 8-cm CD. If an adapter is used, it can come off and the disc may not be removed.**

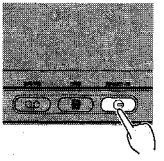
When the disc is inserted halfway, it is automatically loaded and the system starts playback.

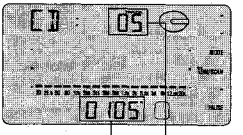


Insert the disc with the recorded surface down.

❖ When the disc is loaded

Press the CD button to change the sound source to built-in CD player.





Elapsed play time

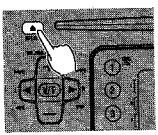
Track number

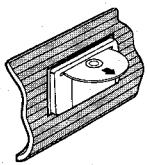
If the disc inserted with the recorded surface up

> The disc will be automatically ejected.

❖ Removing the disc

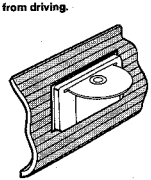
Pressing the CD EJECT button ejects the disc.





Store the disc in a safe place immediately after ejection.

- **Do not leave the disc as shown in the figure above for a long time. This will cause distortion to the disc. Do not drive with an 8-cm CD inserted halfway into the player. The disc may fall off through vibration from driving.**



When loading an improper CD

> If a CD is inserted and stops in the middle or if a CD is loaded but the system does not start playback, that disc may be defective. In such a case, check the disc.

Error display

> The display shows an error code, if the CD player does not operate properly.

Environment for CD playback

> When driving on roads in poor conditions or over joints, the system may skip sound because of excessive vibration.

> If CD playback is performed immediately after switching the heater ON in a very low temperature, the disc or the optics inside this unit (prism, lens, etc.) will get fogged and may result in improper playback operation. Wipe the disc if it is fogged. If the optics inside this unit is fogged, leave the unit for one hour after switching the heater ON. The fogging will be naturally removed and the unit will operate properly.

HEAT display

> To prevent a malfunction, the CD player automatically stops playback when the temperature inside the player gets too hot. In such a case, the display shows "HEAT". The system resumes CD playback when the internal temperature decreases to normal level.

Selecting music (track search) and fast forward/reverse

Track search mode

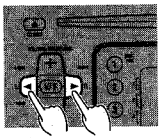
When the unit is in track search mode, music can be selected by its track number.

Manual search mode

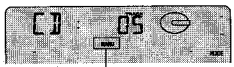
When the unit is in manual search mode, fast forward/reverse may be performed.

> Switching between these two modes cannot be performed by the remote control unit.
> Selecting music can be performed by the remote control unit.

1. To switch between the modes, press the both sides of the ◄/► button simultaneously.

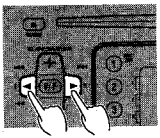


Press simultaneously.



2. Press the ◄/► button to operate.

Holding down the button continuous the operations.



Useful function

Repeated playback allows the same track to be played back repeatedly. Try some of these useful functions to create your new car-audio life.

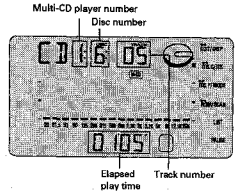
Using the multi-CD player

When the multi-CD player (for example, CDX-P1200 and CDX-P600) is connected to your system, the player can be controlled by this unit. (A maximum of four multi-CD players can be connected. In this case the optional MULTIPEL INSTALLATION ADAPTOR [CD-P44] is required.)

Multi-CD playback ON/OFF

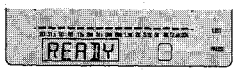
1. **Confirm that the magazine is loaded in the multi-CD player.**

2. **Press the CD button to switch the sound source to multi-CD player.**



When the multi-CD player warms up

> The multi-CD player may warm up (checking the existence of disc, reading disc information, etc.) after the power is switched ON or when the disc to be played back is changed. During warm-up, the display shows "READY".



When no magazine is loaded in the multi-CD player

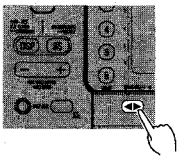
> The power of this unit does not switch OFF and the display shows "NO MAG". To prevent battery consumption, always switch the power of the system OFF when no CD playback is performed. (The system resumes CD playback when the magazine is loaded again.)

Error display

> The display shows an error code, if the multi-CD player does not operate properly.

Selecting a multi-CD player — When using more than one multi-CD players —

The multi-CD player number changes in sequence every time the BAND button is pressed.



Selecting discs (disc number search)

Disc number search can be performed by the following two methods.

Directly specifying disc numbers (by this unit)

Select disc numbers by using the number buttons [1] to [12] on the player.

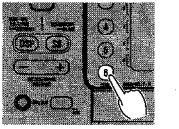
Forward/reverse (by the remote control unit)

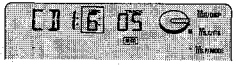
Select disc numbers by using the disc number forward/reverse function.

❖ Directly specifying disc numbers

Press a number button corresponding the desired disc number.

> When a 12-disc multi-CD player is used, switch the FUNCTION button OFF (orange indicator lights up) before selecting disc numbers 7 to 12.





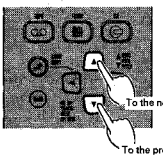
When a 6-disc multi-CD player is used

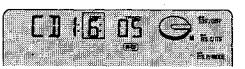
> The FUNCTION button cannot be switched ON/OFF. The FUNCTION button remains ON (yellow indicator lights up).

❖ **Forward/reverse (remote control unit only)**

Press the ▲/▼ button to forward/reverse the disc numbers.

> If the system encounters a disc number of unloaded disc, that number will be skipped and the next disc number will be selected.





Selecting music (track search) and fast forward/reverse

Song selection (track search) and fast forward/reverse are performed in the same manner as with built-in CD playback.

Useful functions

Repeated playback allows the same track (or the same disc in case with multi-CD player) to be played back repeatedly. The ITS (Instant Track Selection) function plays back programmed tracks only. Try some of these useful functions to create your new car-audio life.

Connecting the units

CAUTION

To prevent a short circuit

- Secure the wiring with cable clamps or adhesive tape. To protect the wiring, wrap adhesive tape around them where they lie against metal parts.
- Do not drill a hole into the engine compartment for an orange lead to the vehicle battery. Vibration may eventually wear through the insulation round the lead, resulting in a short circuit through the vehicle body.
- Do not route wires where they will get hot, for example where the heater will blow over them. If the insulation heats up, it may become damaged, resulting in a short circuit through the vehicle body.
- Make sure that wires will not foul moving parts of the vehicle, such as the gearshift, handbrake or seat sliding mechanism.

CAUTION

To avoid accidents

- Do not shorten any leads. If you do, the protection circuit may fail to work when it should.
- Never feed power to other equipment by cutting the insulation of the power supply lead of the unit and tapping into the lead. The current capacity of the lead will be exceeded, causing over heating.

To prevent damage

- When disconnecting a connector, pull holding the connector itself. Do not pull the lead, as it may come away from the connector.
- Do not connect the red lead to power source terminals to which power is continuously supplied. If the lead is connected, the car battery may be overloaded.
- When the unit is mounted in a vehicle whose ignition switch does not have the ACC (accessory) position as shown in Fig. 16, be sure to connect the red lead of the unit to the terminal controlled by the ignition switch ON/OFF position. If you do not, the vehicle battery may go flat when you leave your vehicle for several hours.

Fig. 15
ACC position

Fig. 16
Non ACC position

To prevent noise

> Install the antenna cord as far as possible from the IP-BUS cable, speaker lead and power source lead.

See the manual for each component in the system

> Connect the components correctly by referring to the manual for each component.

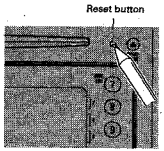
After connection

1. **Connecting the battery.**

   First, double-check that all connections are correct and that the unit is installed correctly. Reassembnle all vehicle components that you previously removed. Then connect the cable terminal to the negative (–) terminal of the battery.

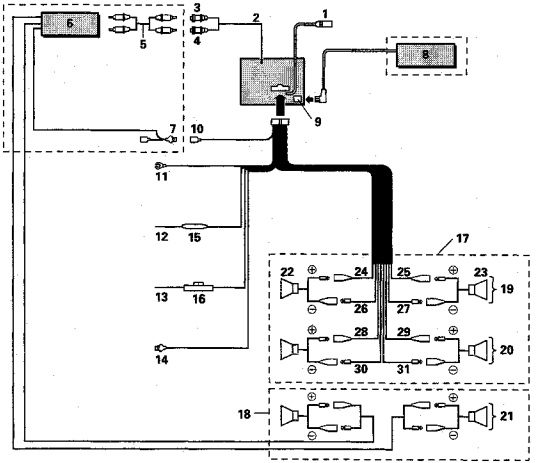
2. **Press the reset button.**

   Press the reset button on the main unit using a pointed object such as the point of a pencil.



Also press the reset buttons of all components equipped with one (see the manual for each component.)

Connection



1. Antenna jack
2. Rear output or subwoofer output
3. White
4. Red
5. Connecting cords with RCA pin plugs (sold separately)
6. Power amp (sold separately)
7. Blue
8. Multi-CD player etc. (sold separately)
9. IP-BUS input (blue)
10. Blue
    To system control terminal of the power amp or Auto-antenna relay control terminal (Max. 300 mA 12 V DC).
11. Black (ground)
    To vehicle (metal) body.
12. Red
    To electric terminal controlled by ignition switch (12 V DC) ON/OFF.
13. Orange
    To terminal always supplied with power regardless of ignition switch position.
14. Yellow/Black
    Cellular mute
    If you use a cellular telephone, connect it via the Audio Mute lead on the cellular telephone. If not, keep the Audio Mute lead free of any connections.
15. *Fuse resister*
16. Fuse holder
    When replacing fuses, be sure to use only fuses of the rating prescribed on the fuse holder.
17. With a 2 speaker system, connect to the 2 speakers in the front or the rear.
18. Use this for connections when you have the separately available amplifier.
19. Front
20. Rear
21. Rear or subwoofer
22. Left speaker
23. Right speaker
24. Green
25. Gray
26. Green/black
27. Gray/black
28. Green/red
29. Gray/red
30. Black/green
31. Black/gray

PIONEER
The Art of Entertainment

Service Manual

ORDER NO.
CRZ1596

The chapter 1 of this Service Manual will not be reprinted. On your additional orders, we may supply only the chapter 2. For the chapter 1, please make copies and attach to the chapter 2 at your side if necessary.

MULTI-CD CONTROL DSP TUNER CD DECK AMPLIFIER

FH-P95 UC
FH-P90 ES

COMPACT DISC DIGITAL AUDIO

NOTE:

- **See the service manual DEH-M980/UC (CRT1450) for the CD mechanism description, disassembly and circuit description.**
- **Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.**
- **See the separate manual CX-529 (CRT1507) for the cassette mechanism description.**
- **The cassette mechanism employed in this model is one of 1L mechanism series.**

CHAPTER 2

CONTENTS

1. PACKING METHOD 2-3
2. EXPLODED VIEW 2-5
3. CONNECTION DIAGRAM (FH-P95/UC) 2-19
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8. BLOCK DIAGRAM 2-59

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K-FFA.JUNE 1994 Printed in Japan

1. PACKING METHOD

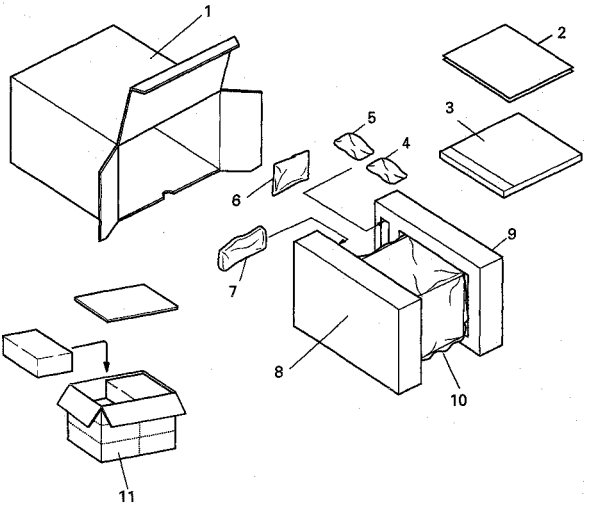


Fig.1

● **Parts List(FH-P95/UC)**

* : Non Spare Part

Mark	No.	Description	Part No.
	1	Carton	CHG2492
	2-1	Owner's Manual	CRB1331
	2-2	Owner's Manual	CRB1332
*	2-3	Card	ARY1048
	2-4	Owner's Manual	CRB1333
	3	CD	CPJ1002
	4	Accessory Assy	CEA1996
	5	Screw Assy	CEA1991
	6	Cord Assy	CDE4445
	7	Remote Control Assy	CXA6267
	8	Protector(L)	CHP1636
	9	Protector(R)	CHP1637
	10	Cover	CEG1177
	11	Contain Box	CHL2492

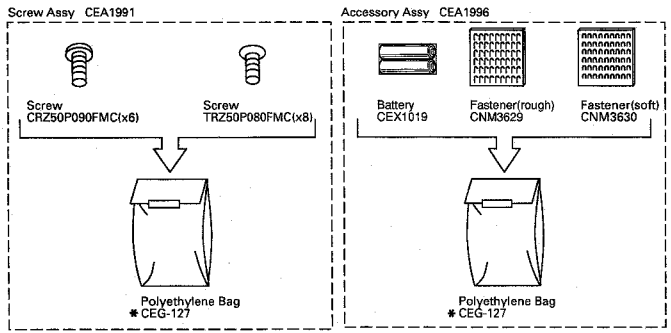


Fig.2

• The FH-P90/ES Parts List enumerates the parts which differ from those for the FH-P95/UC only. The parts other than those enumerated in the FH-P90/ES Parts List are identical with those in the FH-P95/UC Parts List, to which you are requested to refer, accordingly. The FH-P95/UC Parts List is given on page 2-3.

Mark	No.	Description	FH-P95/UC Part No.	FH-P90/ES Part No.
	1	Carton	CHG2492	CHG2493
	2-1	Owner's Manual	CRB1331	CRB1329
	2-2	Owner's Manual	CRB1332	*****
*	2-3	Card	ARY1048	*****
	2-4	Owner's Manual	CRB1333	CRB1334
	10	Cover	CEG1177	CEG1074
	11	Contain Box	CHL2492	CHL2493

Owner's Manual

Part No.	Model	Language
CRB1331	FH-P95/UC	English
CRB1332	FH-P95/UC	French
CRB1329	FH-P90/ES	English
CRB1333	FH-P95/UC	English
CRB1334	FH-P90/ES	English

2. EXPLODED VIEW

● **Chassis(Parts List:Page 1-37)**

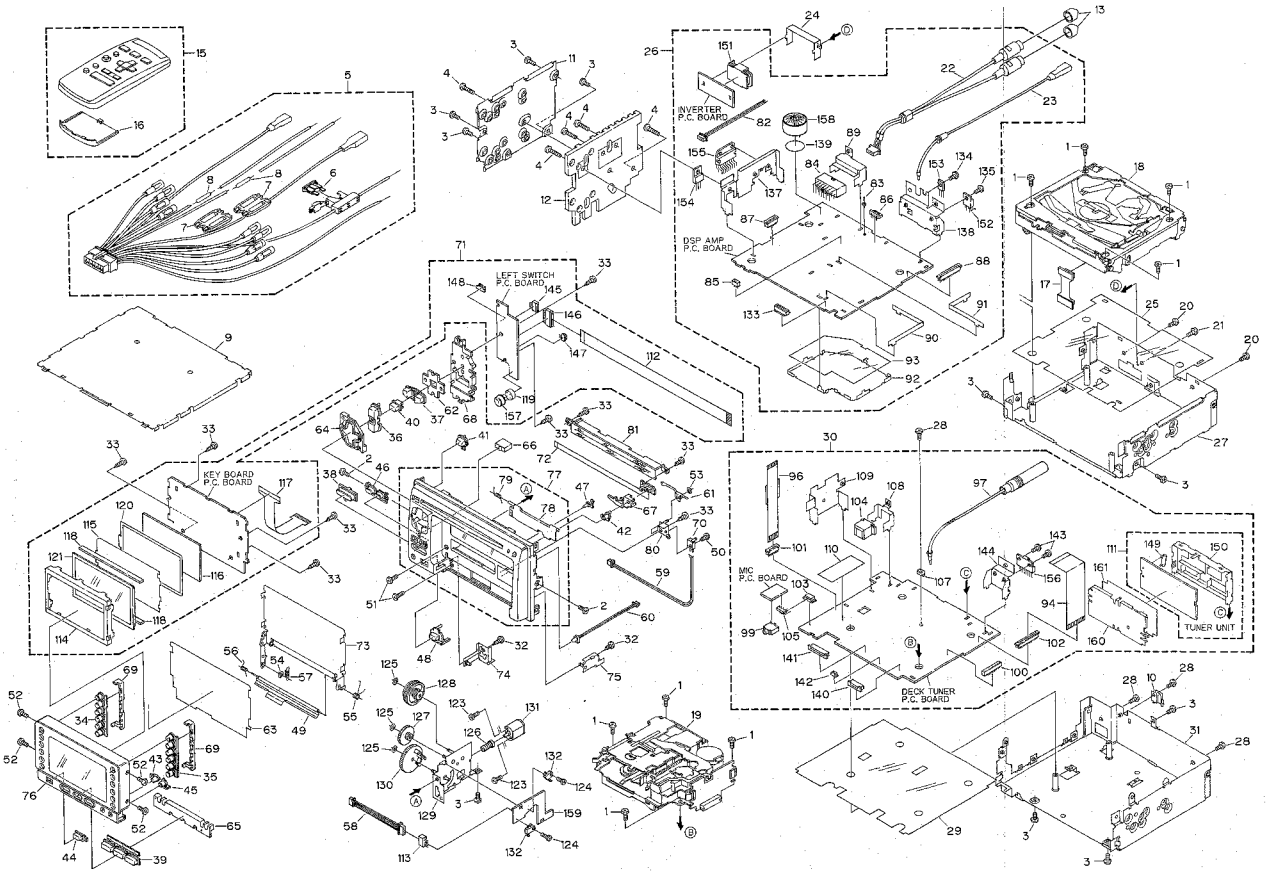


Fig.3

● CD Mechanism Module(Parts List:Page 1-39)

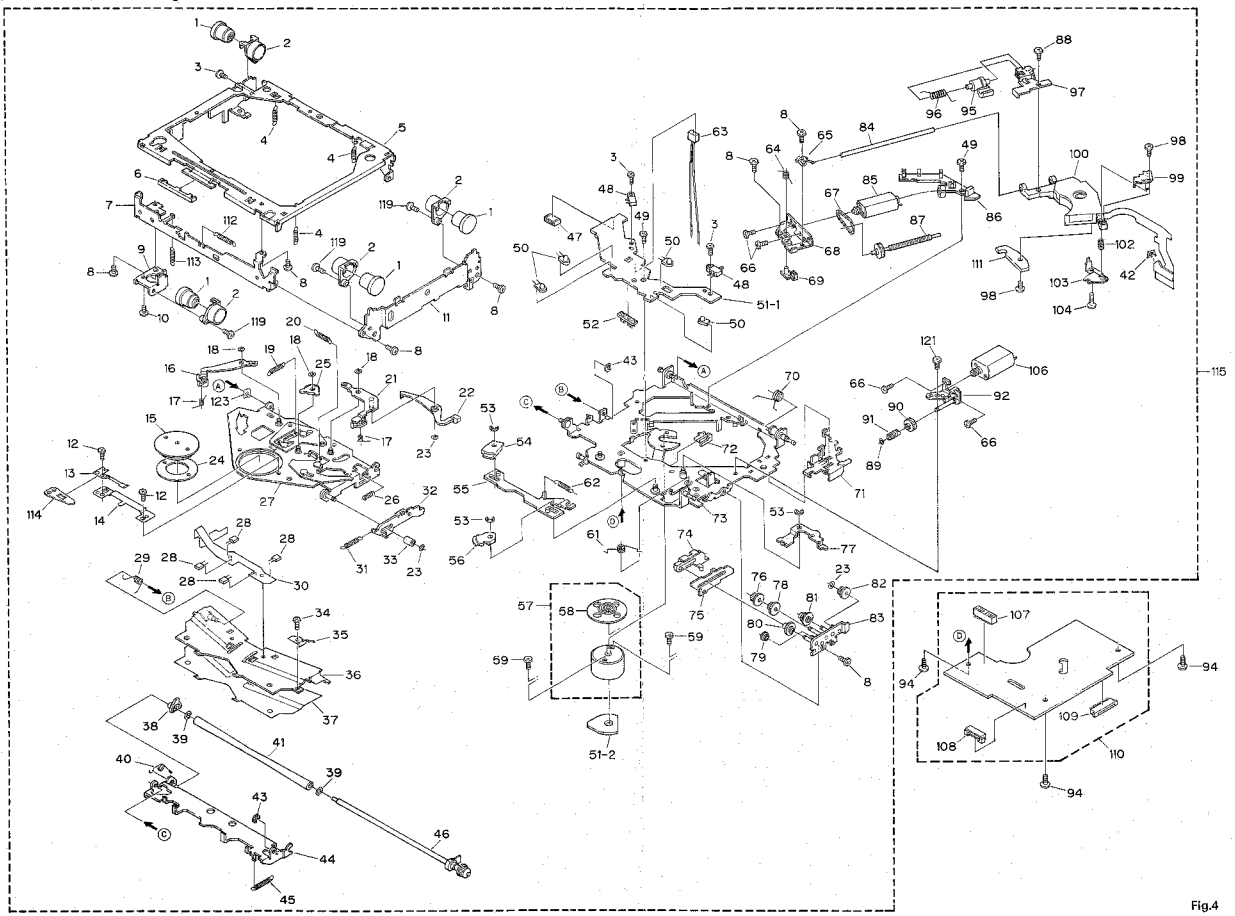


Fig.4

● Cassette Mechanism Module(Parts List:Page 1-41)

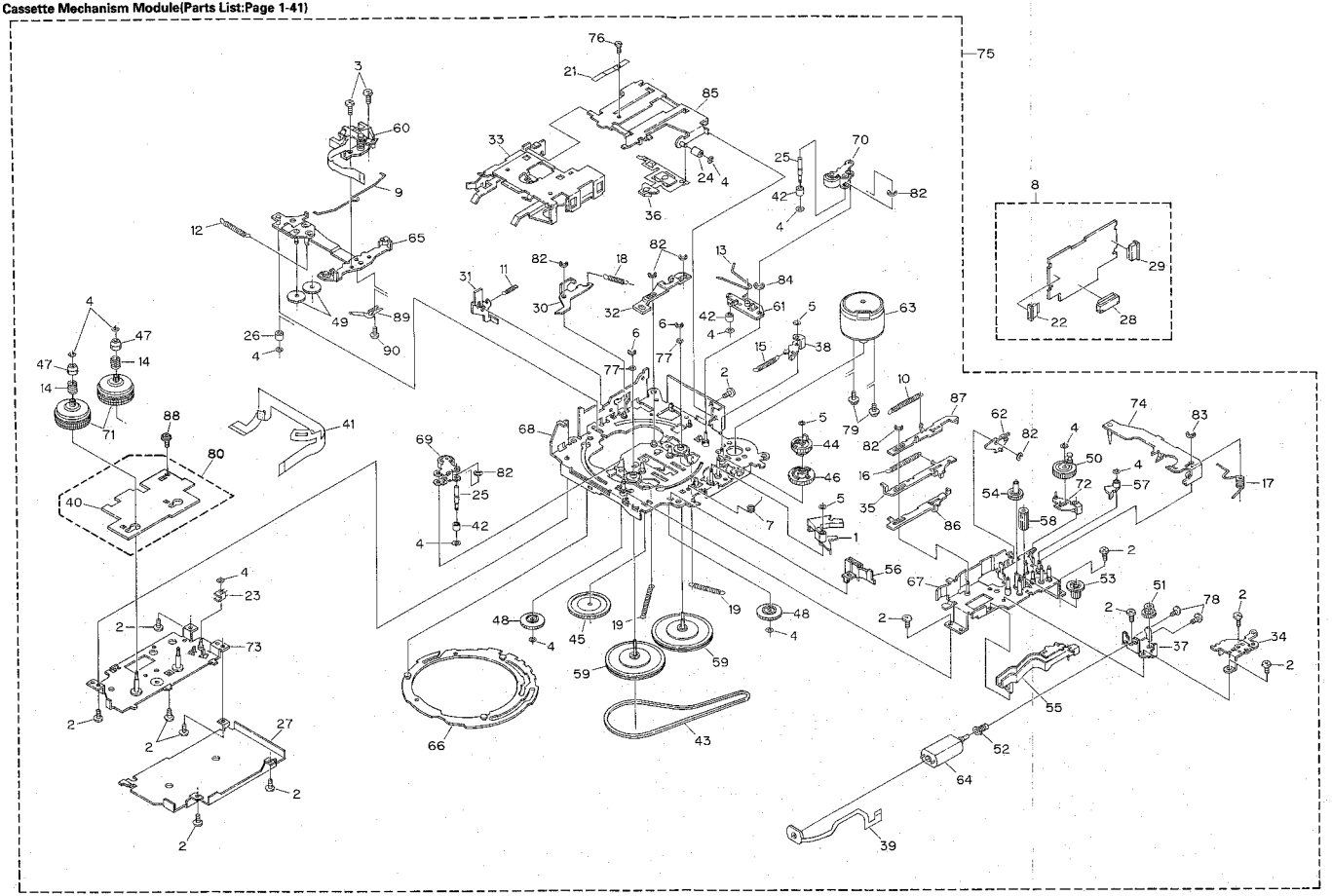


Fig.5

● LCD(CAW1257)

SEGMENT

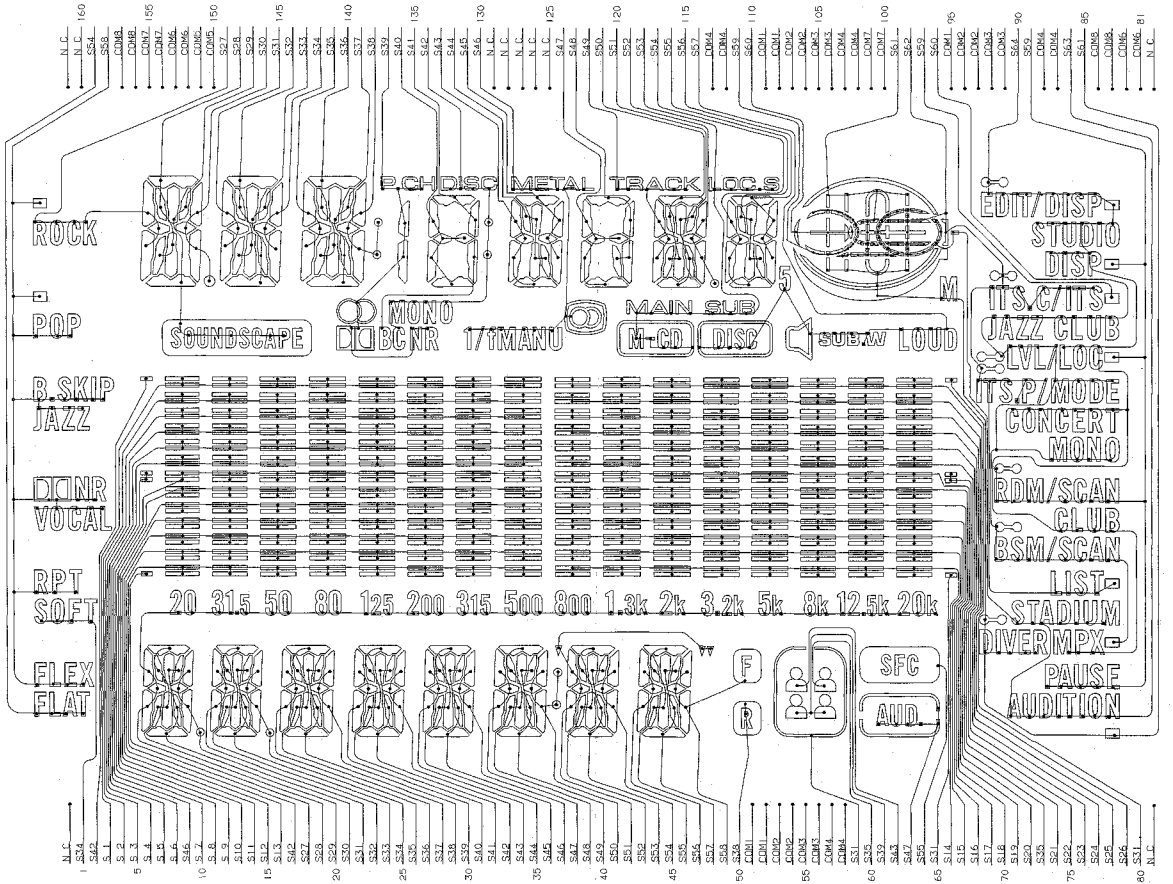


Fig.6

COMMON

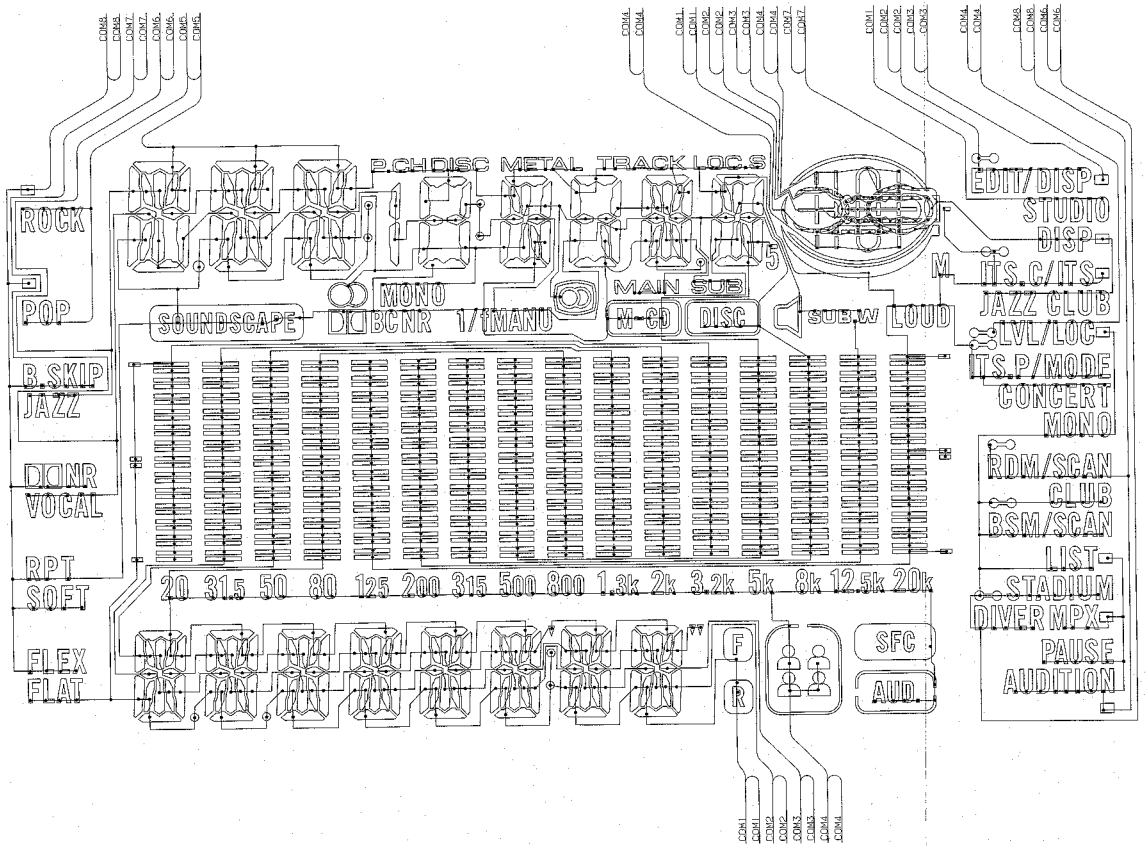

COM0
COM1
COM2
COM3
COM4
COM5
COM6
COM7
P.CH DISC METAL TRACK LOC.S
ROCK
POP
B.SKIP
JAZZ
D.C.NR
VOCAL
RPT
SOFT
FLEX
FLAT
SOUNDSCAPE
MONO
D.C.BC NR
1/f MANU
MAIN SUB
M-CD
DISC
SUB.W
LOUD
20 31.5 50 80 125 200 315 500 800 1.3k 2k 3.2k 5k 8k 12.5k 20k
F
R
SFC
AUD.
EDIT/DISP
STUDIO
DISP
M
ITS.C/ITS
JAZZ CLUB
LVL/LOC
ITS.P/MODE
CONCERT
MONO
RDM/SCAN
CLUB
BSM/SCAN
LIST
STADIUM
DIVER MPX
PAUSE
AUDITION

Fig.7

● LCD(CAW1252)
SEGMENT

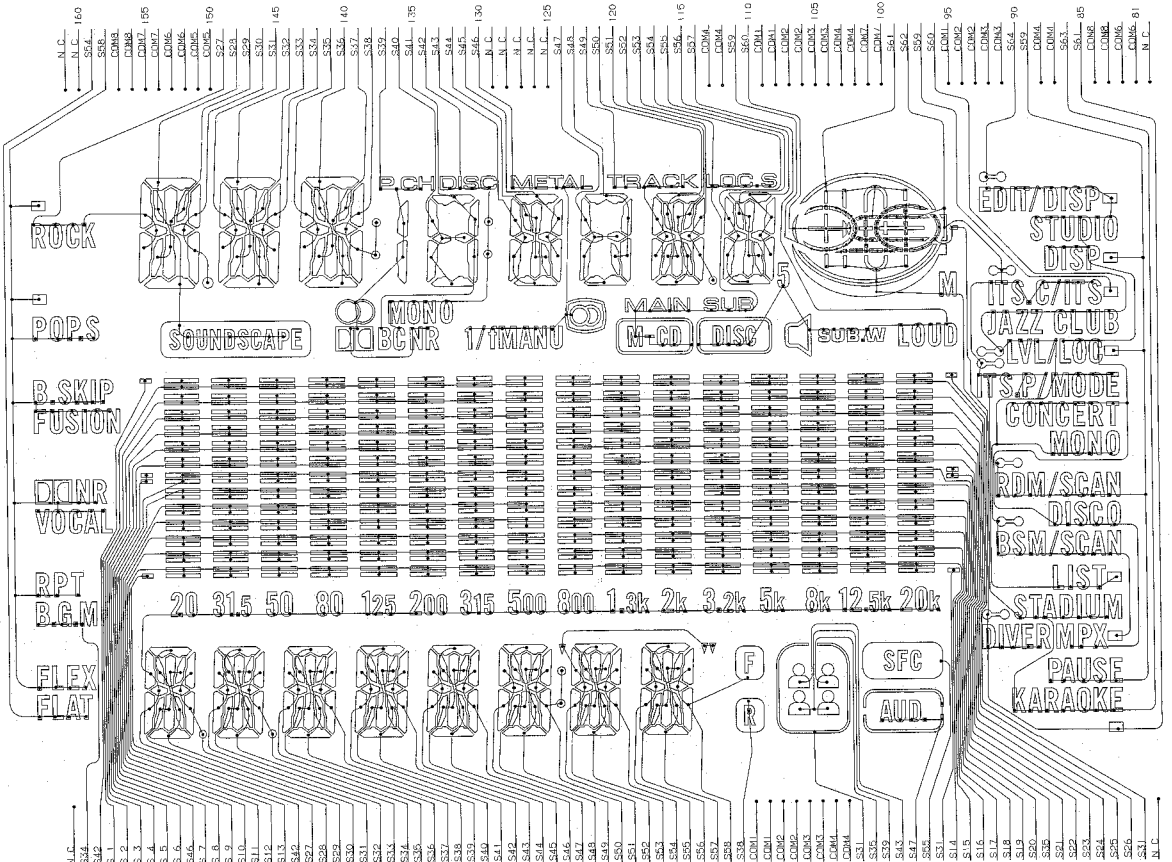


Fig.8

COMMON

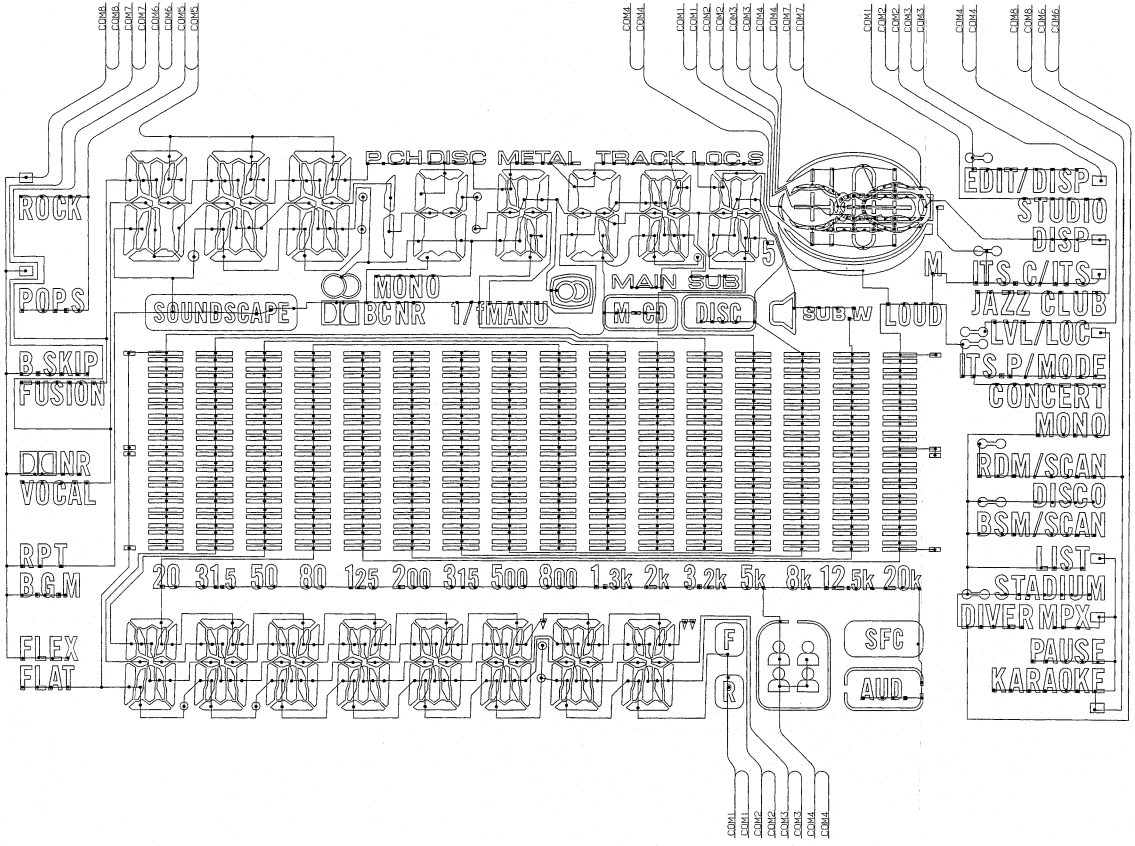

COM8
COM9
COM7
COM7
COM6
COM6
COM5
COM5
COM4
COM4
COM1
COM1
COM2
COM2
COM3
COM3
COM4
COM4
COM7
COM7
COM1
COM2
COM3
COM3
COM4
COM4
COM8
COM8
COM6
COM6
P.CH DISC METAL TRACK LOC.S
ROCK
POPS
B.SKIP
FUSION
DIONR
VOCAL
RPT
B.G.M
FLEX
FLAT
MONO
SOUNDSCAPE
DIONR
1/7
MANU
MAIN SUB
M-CD
DISC
SUB.W
LOUD
20 31.5 50 80 125 200 315 500 800 1.3k 2k 3.2k 5k 8k 12.5k 20k
F
R
SFC
AUD.
EDIT/DISP
STUDIO
DISP
M
ITS.C/ITS.
JAZZ CLUB
LVL/LOC
ITS.P/MODE
CONCERT
MONO
RDM/SCAN
DISCO
BSM/SCAN
LIST
STADIUM
DIVER MPX
PAUSE
KARAOKE
COM1
COM1
COM2
COM2
COM3
COM3
COM4
COM4

Fig.9

3. CONNECTION DIAGRAM(FH-P95/UC)

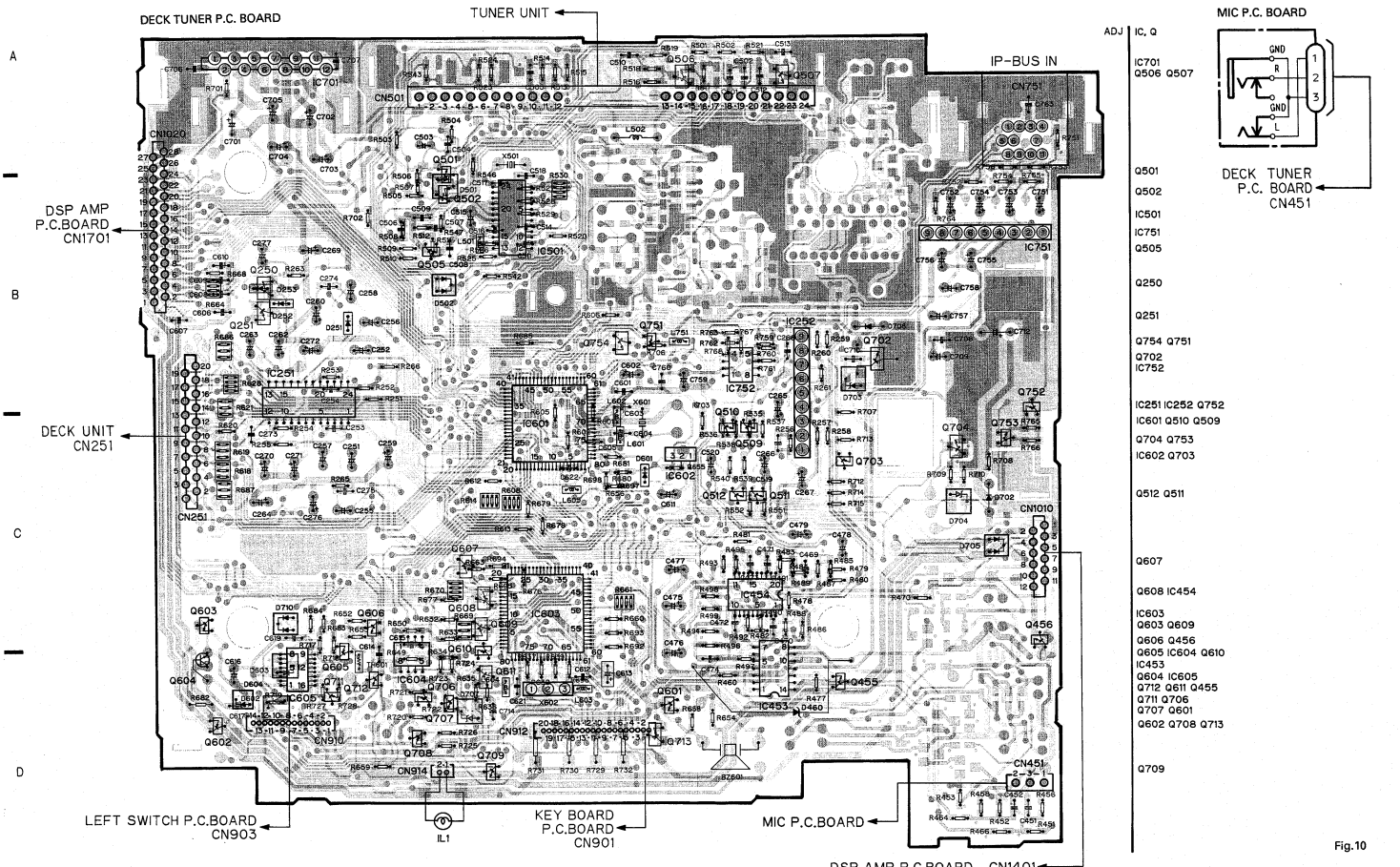
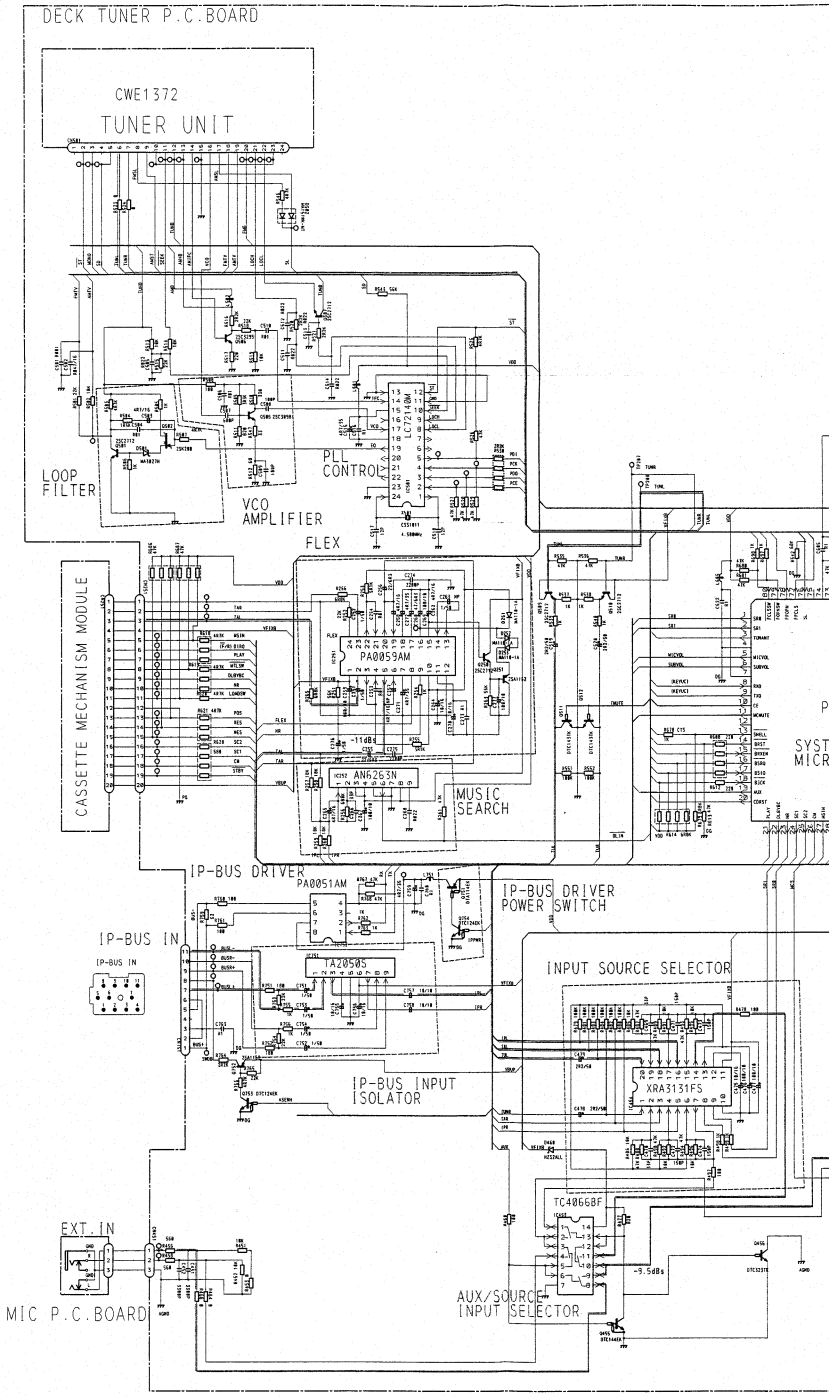


Fig.10

4. SCHEMATIC CIRCUIT DIAGRAM(FH-P95/UC)



1 2 3 4

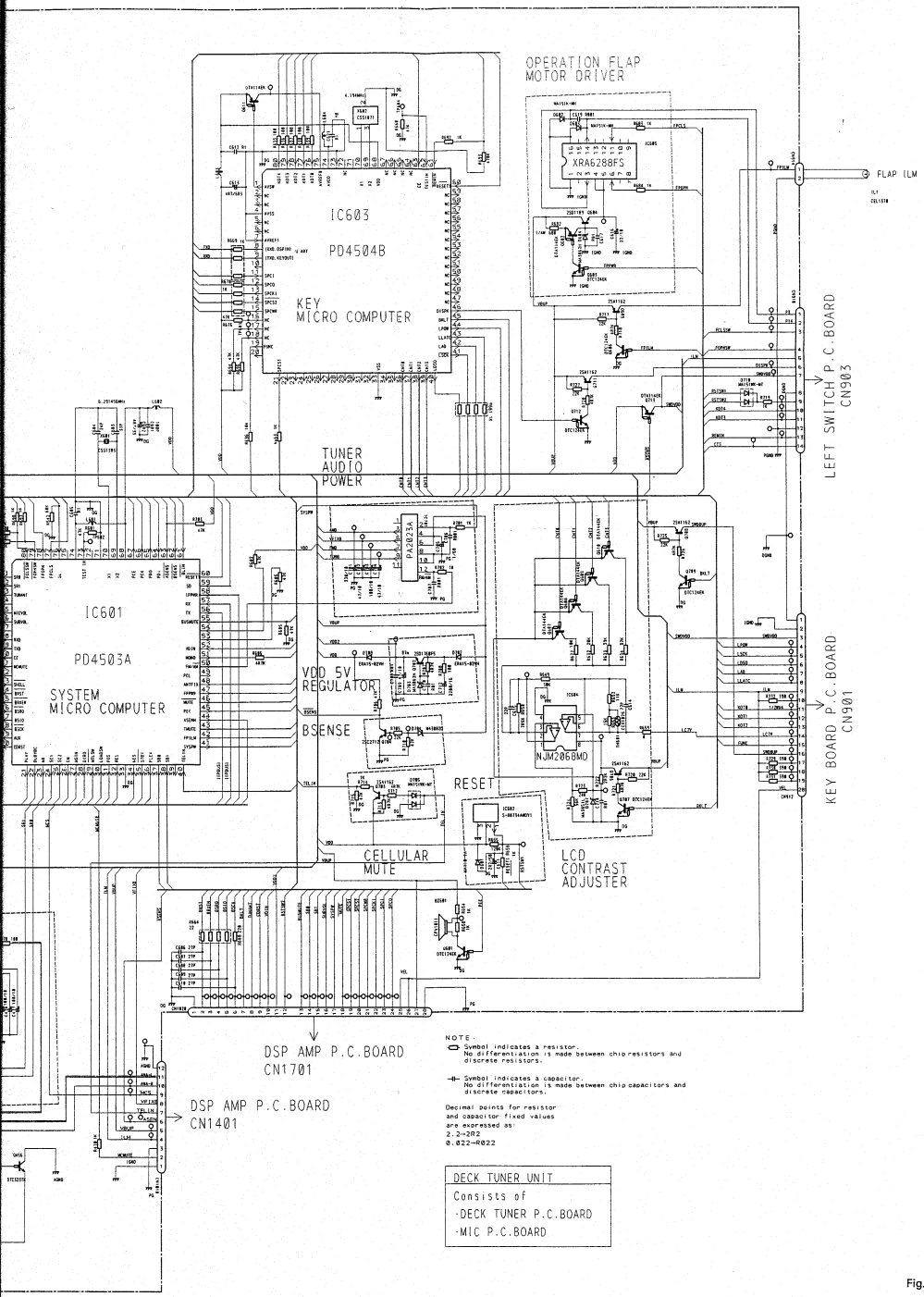
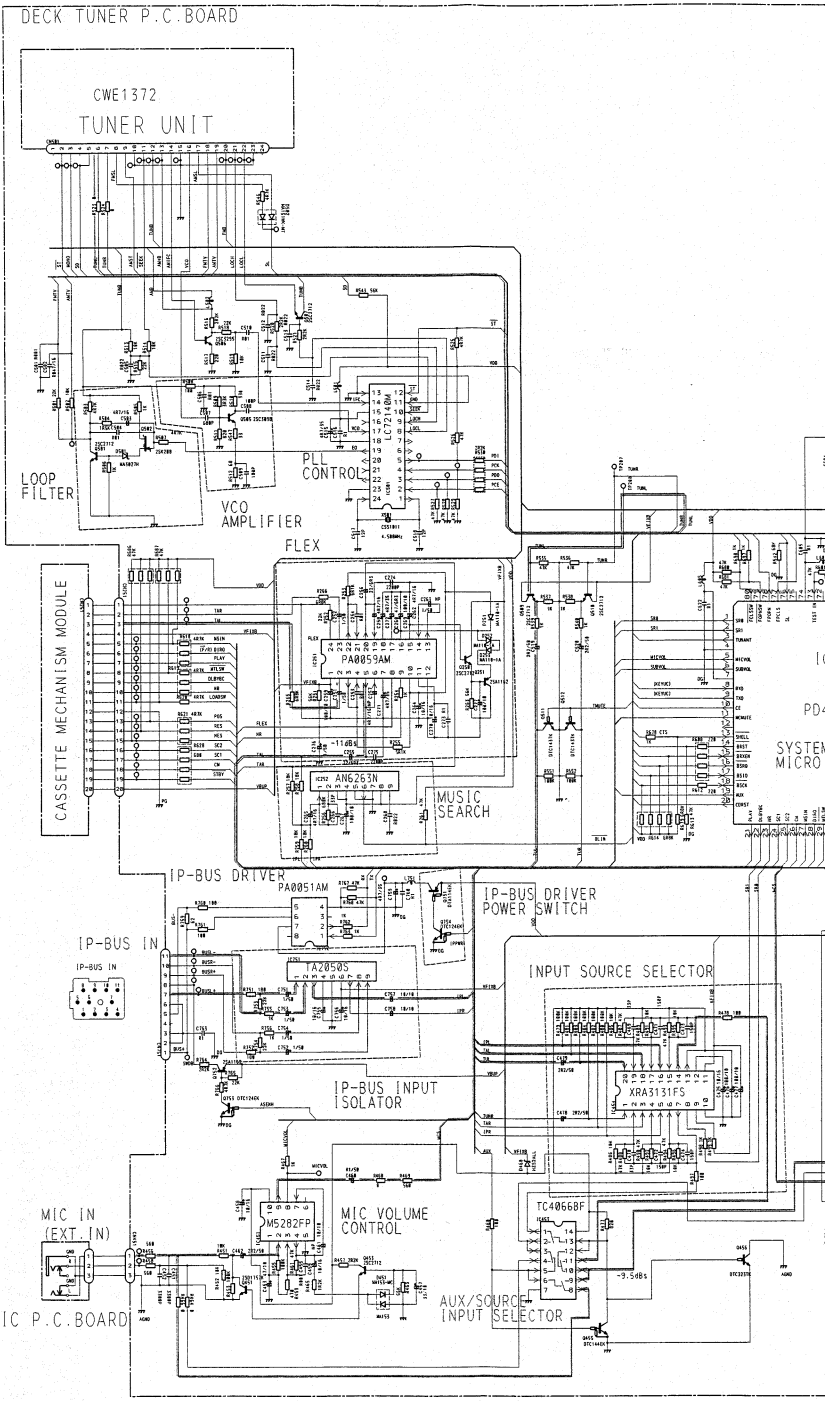
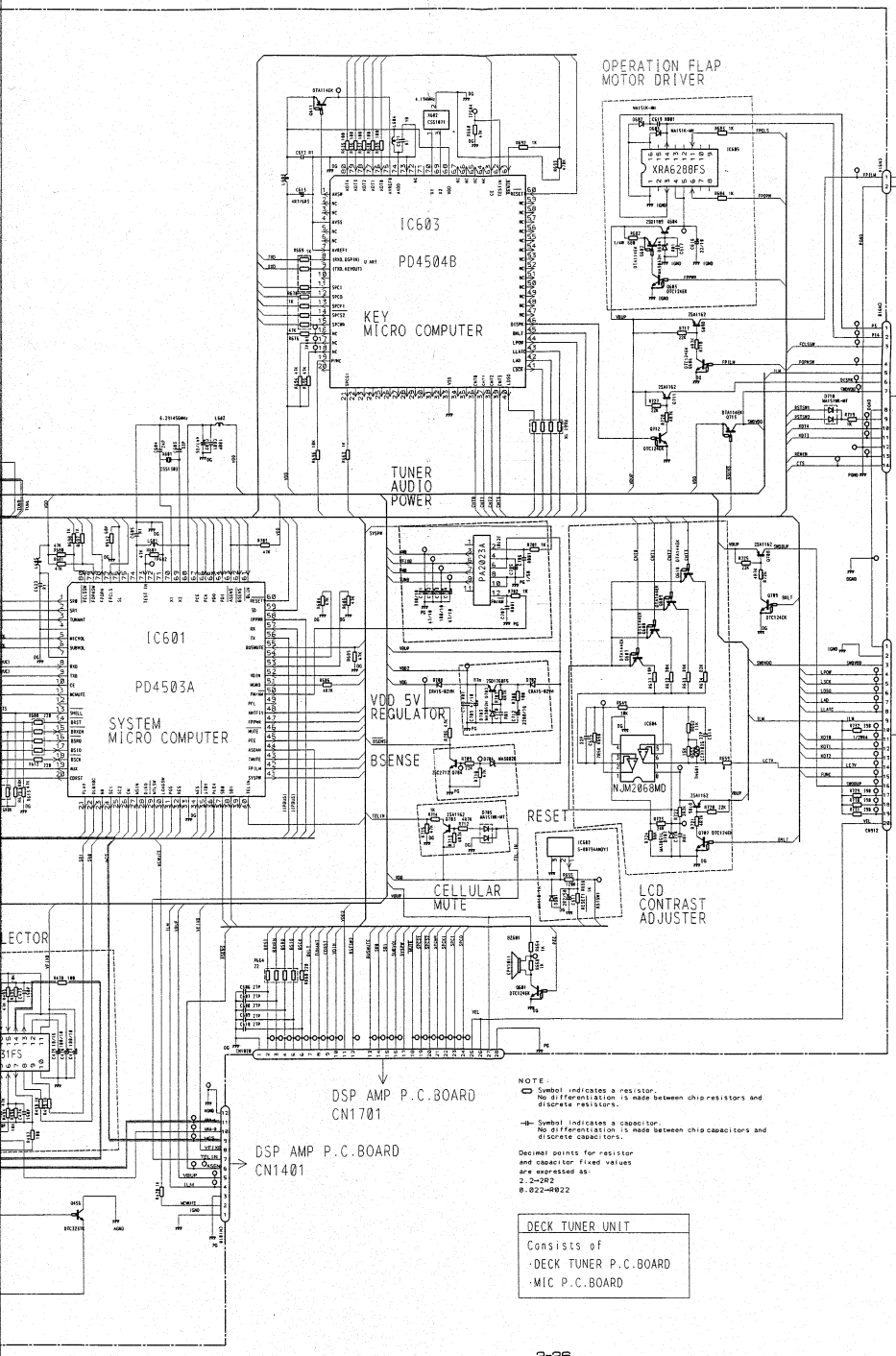

OPERATION FLAP
MOTOR DRIVER
XRA6288FS
FLAP ILM
IC603
PD4504B
KEY
MICRO COMPUTER
TUNER
AUDIO
POWER
LEFT SWITCH P.C.BOARD
CN903
KEY BOARD P.C.BOARD
CN901
IC601
PD4503A
SYSTEM
MICRO COMPUTER
PA2023A
VDD 5V
REGULATOR
BSENSE
NJM2068MD
RESET
CELLULAR
MUTE
LCD
CONTRAST
ADJUSTER
DSP AMP P.C.BOARD
CN1701
DSP AMP P.C.BOARD
CN1401
NOTE:
Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022
DECK TUNER UNIT
Consists of
·DECK TUNER P.C.BOARD
·MIC P.C.BOARD

Fig.11

5. SCHEMATIC CIRCUIT DIAGRAM(FH-P90/ES)





NOTE:

Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.

Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

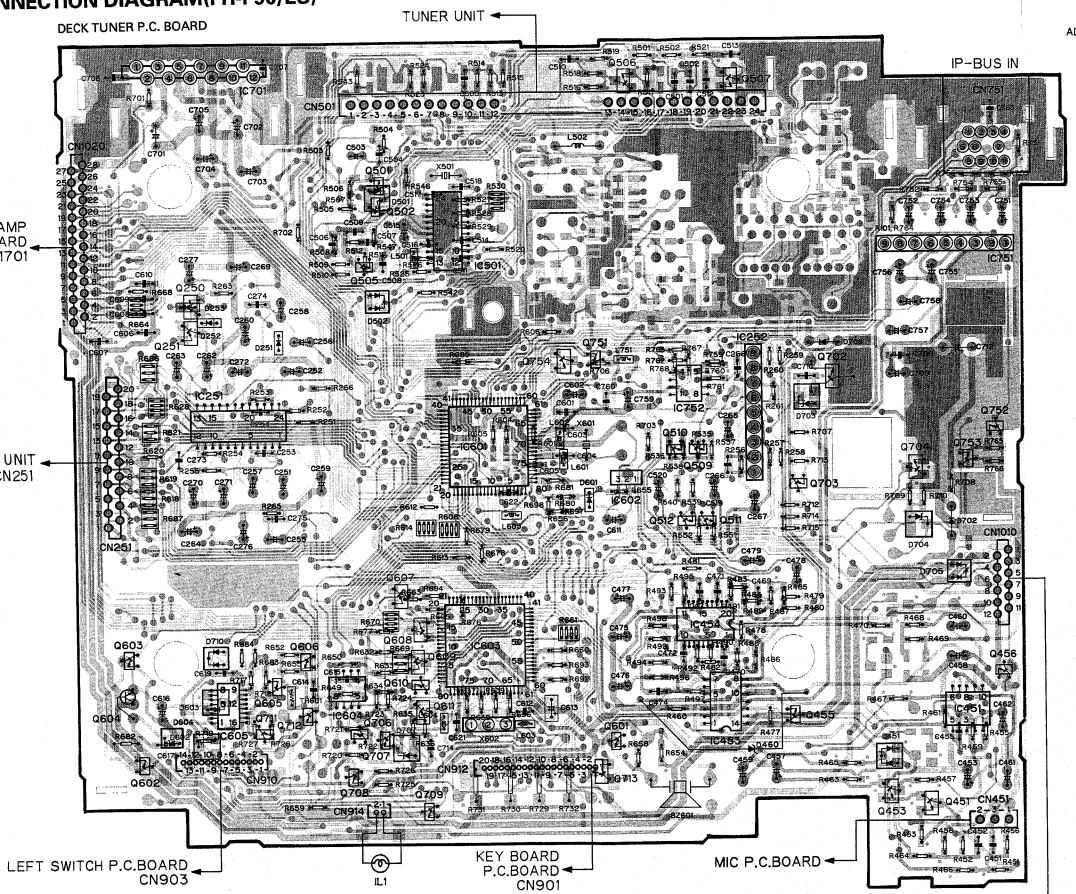
Decimal points for resistor and capacitor fixed values are expressed as:
2.2→2R2
0.022→R022

DECK TUNER UNIT
Consists of
·DECK TUNER P.C.BOARD
·MIC P.C.BOARD

Fig.12

5 6 7 8 9

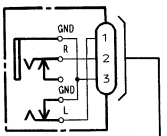
6. CONNECTION DIAGRAM(FH-P90/ES)



ADJ

IC, Q	
IC701 Q506 Q507	A
Q501 Q502	
IC501	
IC751	
Q505	
Q250	
Q251	B
Q754 Q751 Q702 IC752	
IC251 IC252 Q752	
IC601 Q510 Q509	
Q704 Q753	
IC602 Q703	
Q512 Q511	
	C
Q607	
Q608 IC454	
IC603 Q603 Q609 Q606 Q456 Q605 IC604 Q610 IC453 Q604 IC605 IC451 Q712 Q611 Q455 Q711 Q706 Q707 Q601 Q602 Q708 Q713	
Q453	
Q709 Q451	D

MIC P.C. BOARD



DECK TUNER P.C. BOARD CN451

Fig.13

7. CIRCUIT DIAGRAM AND PATTERN

7.1 DSP AMP UNIT(FH-P95/UC)

● **Connection Diagram**

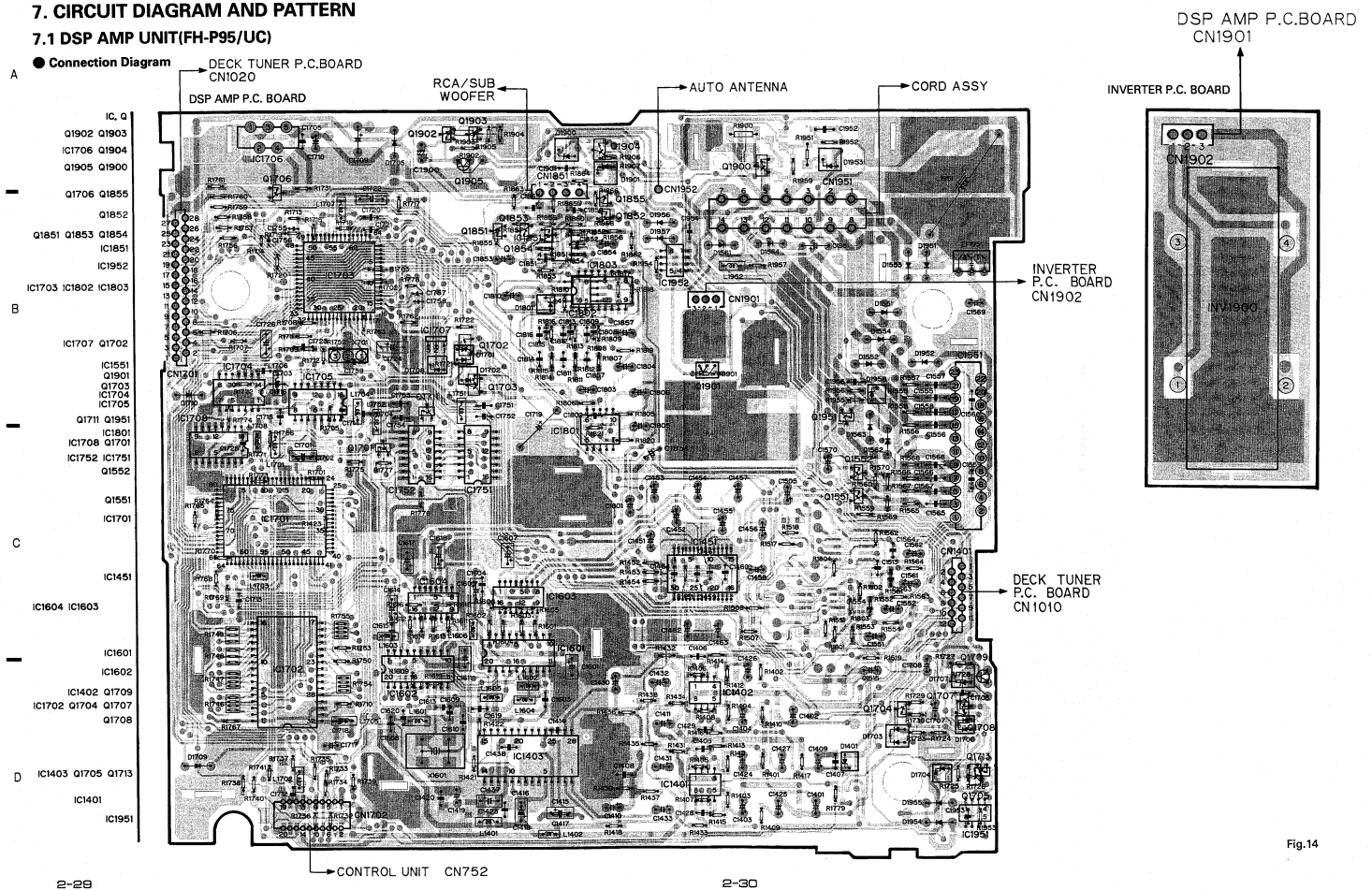
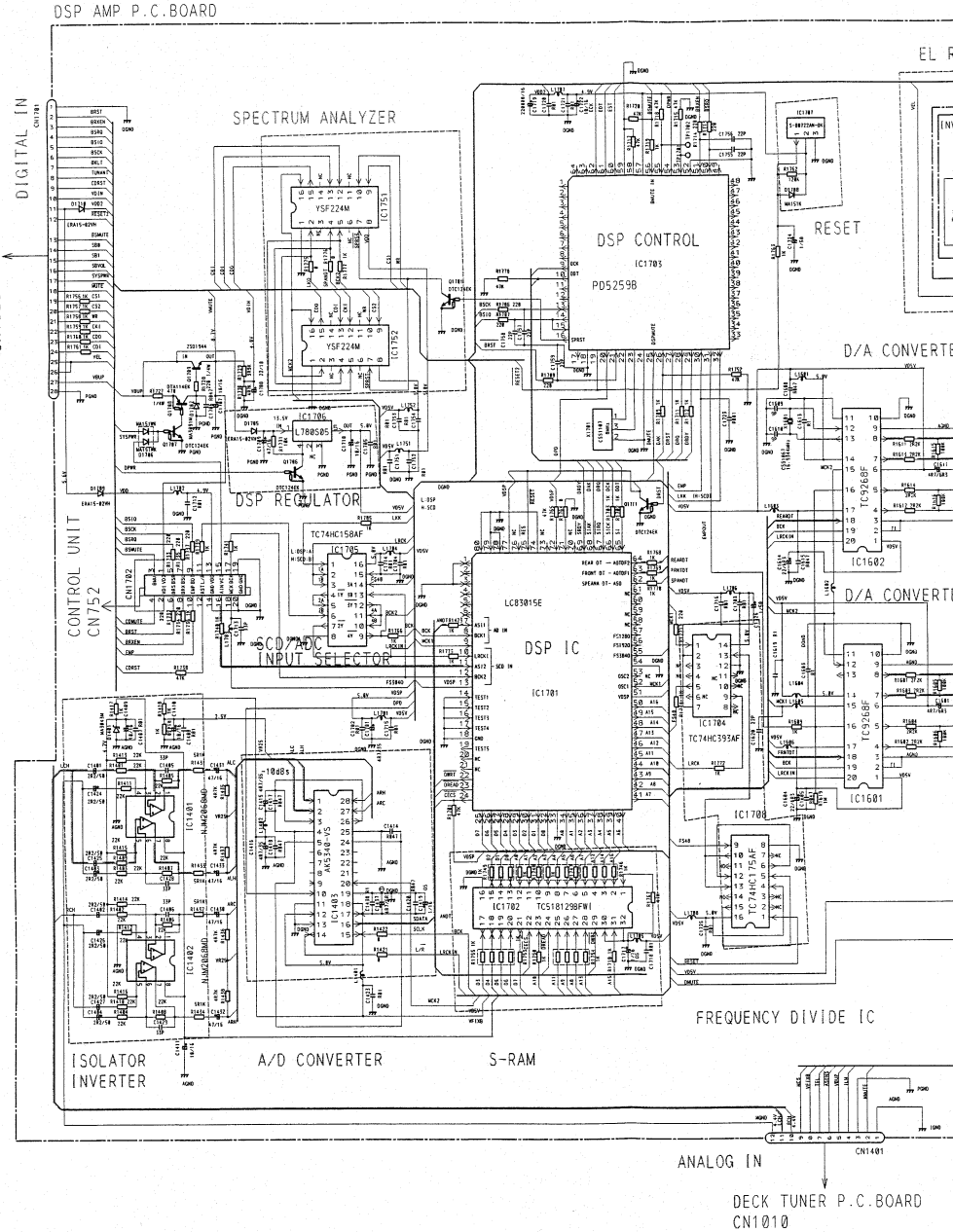


Fig.14

● **Circuit Diagram**



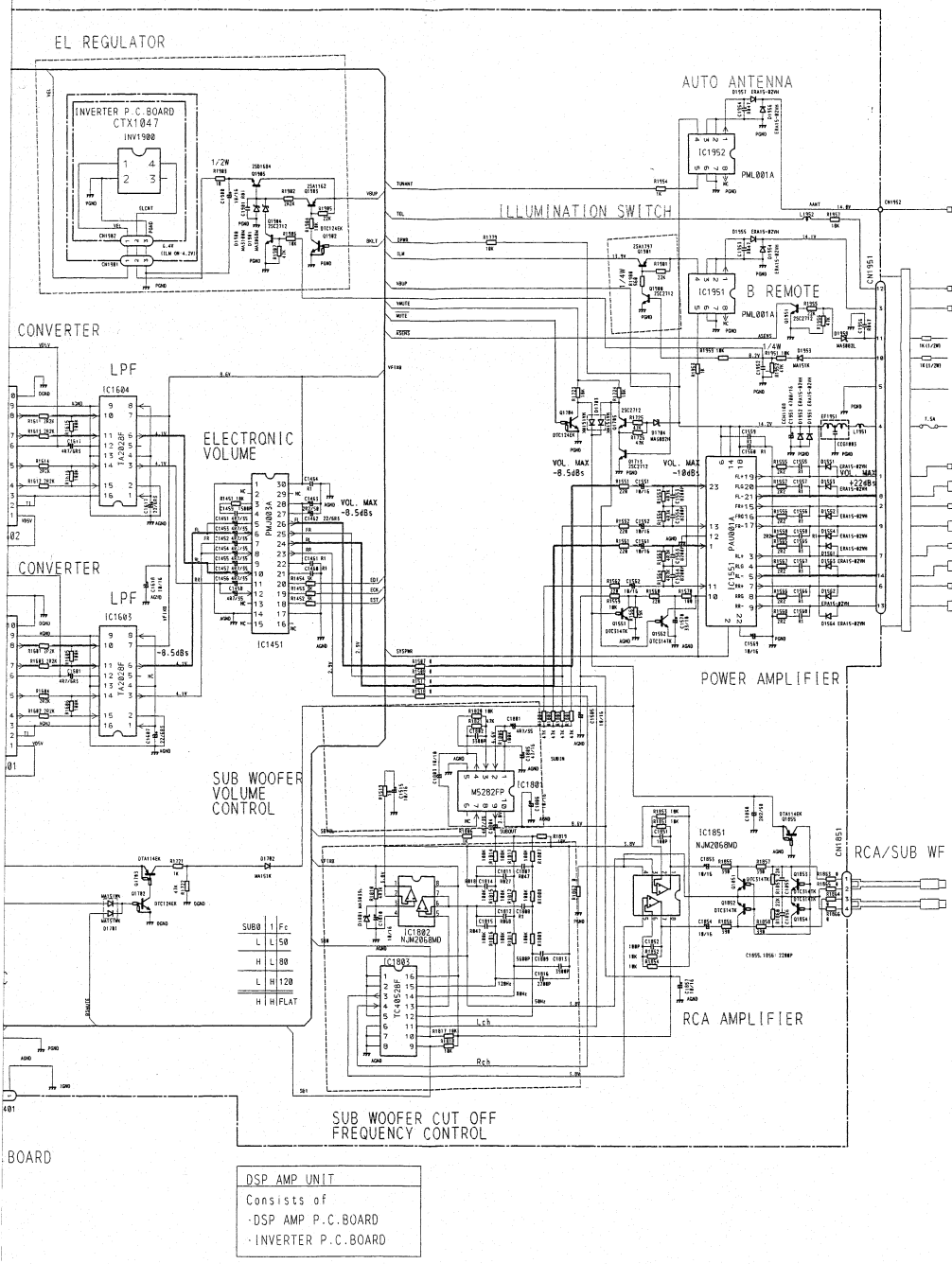
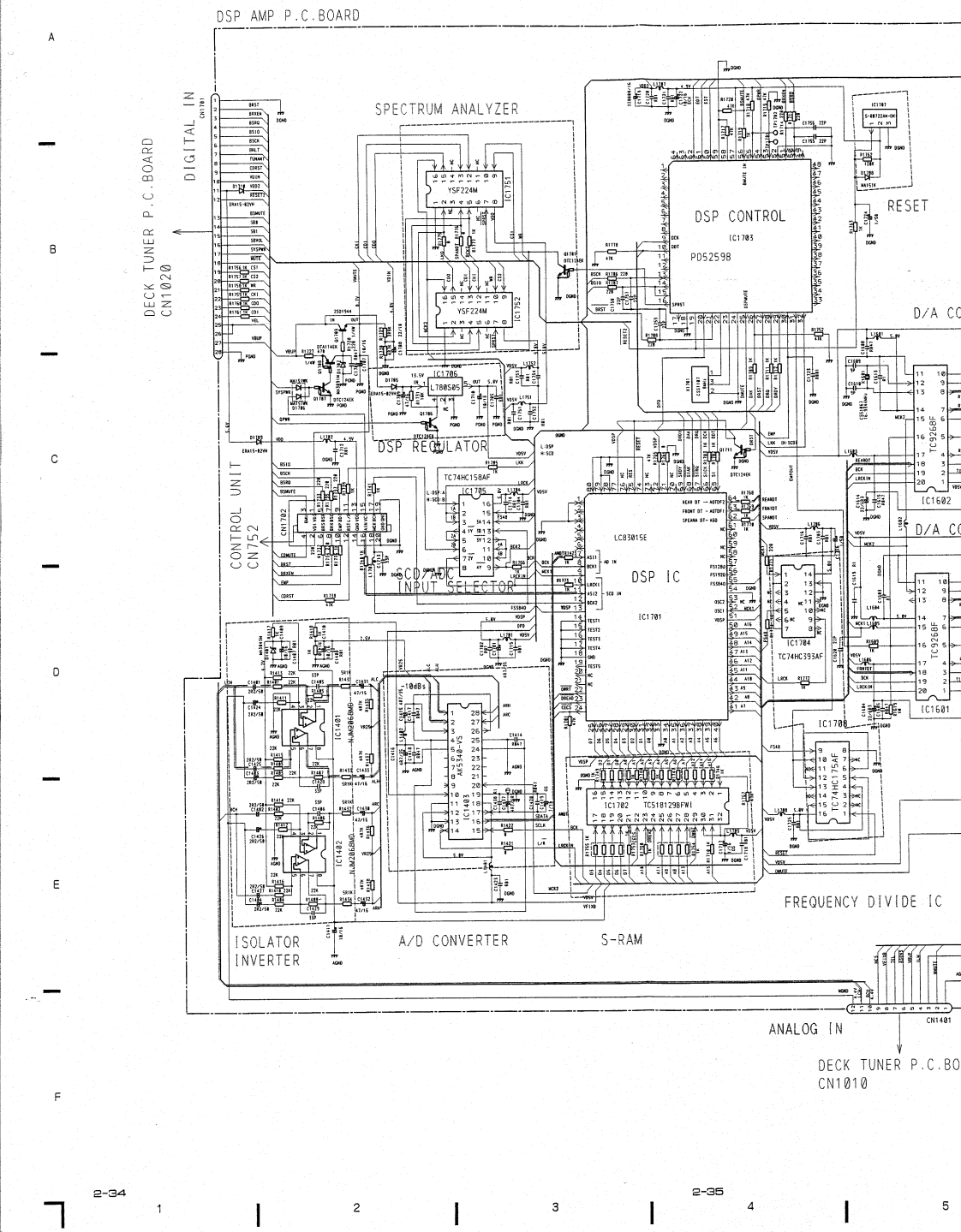

EL REGULATOR
INVERTER P.C.BOARD
CTX1047
INV1900
CONVERTER
LPF
IC1604
IA2028F
ELECTRONIC VOLUME
PML0053A
IC1451
VOL. MAX -8.5dBs
CONVERTER
LPF
IC1603
IA2028F
-8.5dBs
SUB WOOFER VOLUME CONTROL
M5282FP
IC1801
IC1802
NJM2068MD
IC1803
LC4532V
Lch
Rch
SUB WOOFER CUT OFF FREQUENCY CONTROL
BOARD
AUTO ANTENNA
IC1952
PML001A
ILLUMINATION SWITCH
B REMOTE
IC1951
PML001A
POWER AMPLIFIER
PAU0014
VOL. MAX -10dBs
VOL. MAX +22dB
IC1851
NJM2068MD
RCA/SUB WF
RCA AMPLIFIER
SUB0 1 Fc
L L 50
H L 80
L H 120
H H FLAT
DSP AMP UNIT
Consists of
·DSP AMP P.C.BOARD
·INVERTER P.C.BOARD

Fig.15

7.2 DSP AMP UNIT(FH-P90/ES)

● **Circuit Diagram**



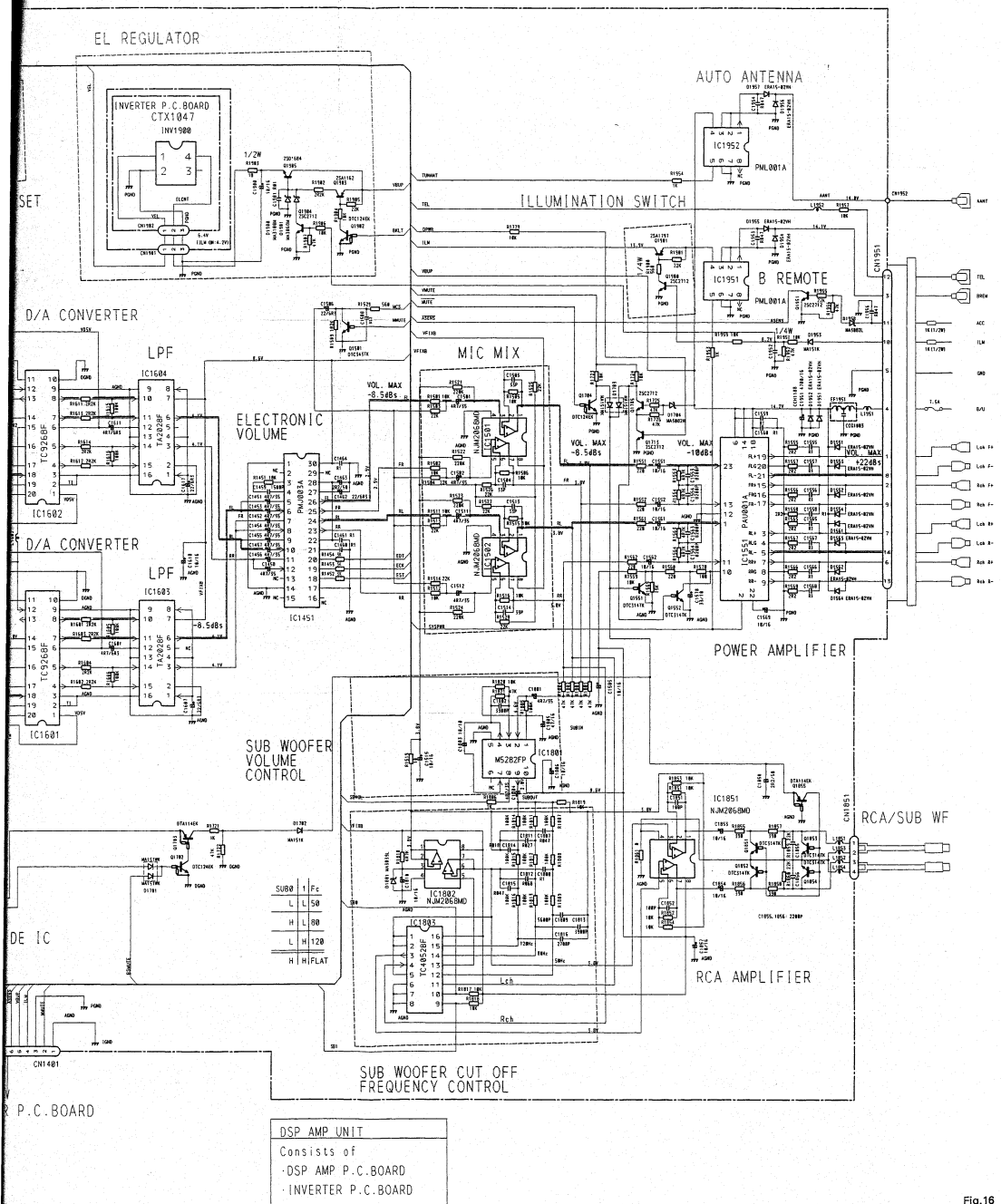
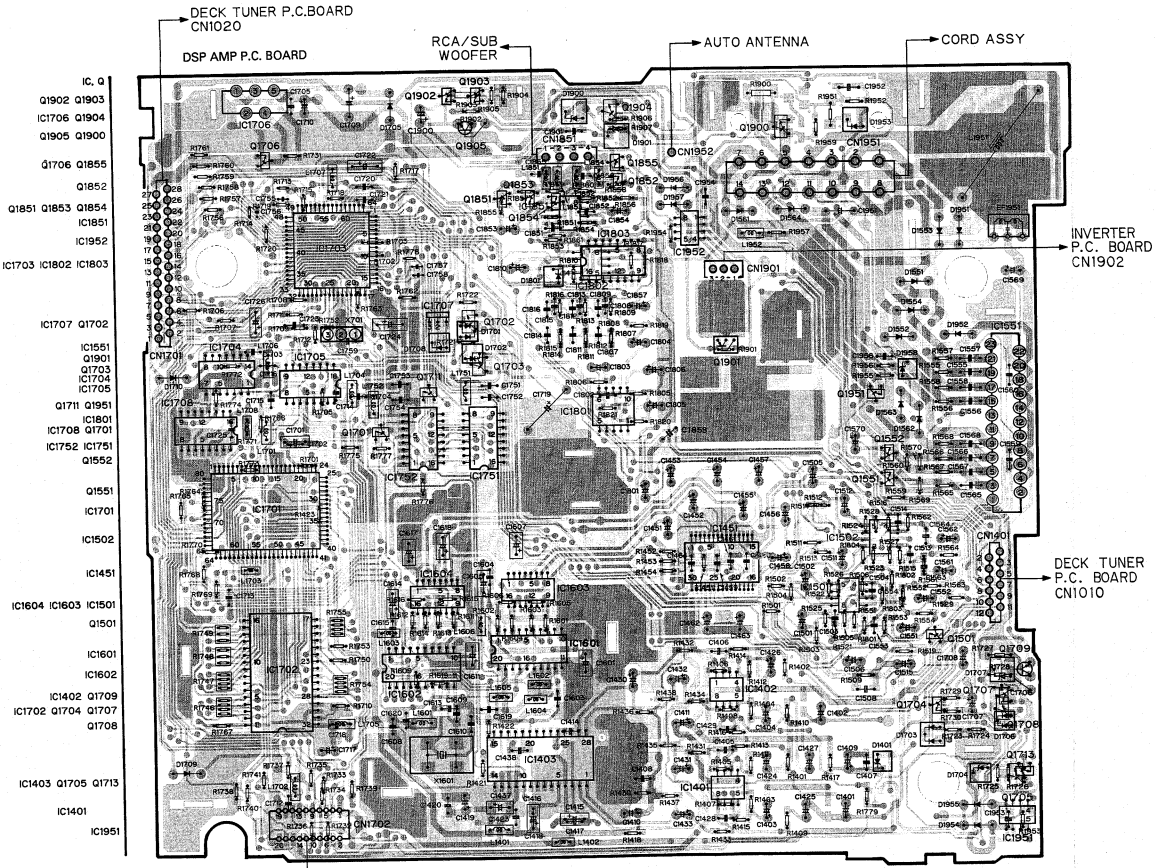

EL REGULATOR
INVERTER P.C.BOARD
CTX1047
INV1980
AUTO ANTENNA
IC1952
PML001A
ILLUMINATION SWITCH
B REMOTE
IC1951
PML001A
D/A CONVERTER
LPF
IC1604
TC9268F
IC1602
MIC MIX
VOL. MAX
-8.5dBs
ELECTRONIC
VOLUME
PAV0083A
IC1451
D/A CONVERTER
LPF
IC1603
TC9268F
IC1601
-8.5dBs
POWER AMPLIFIER
PAV0014
IC1551
SUB WOOFER
VOLUME
CONTROL
M5282FP
IC1800
IC1851
NJM2068MD
RCA/SUB WF
IC1802
NJM2068MD
IC1803
TC4052BF
RCA AMPLIFIER
SUB WOOFER CUT OFF
FREQUENCY CONTROL
CN1401
P.C.BOARD
DE IC
SET
DSP AMP UNIT
Consists of
·DSP AMP P.C.BOARD
·INVERTER P.C.BOARD

Fig.16

● **Connection Diagram**



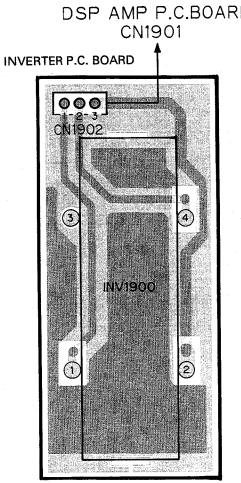


Fig.17

7.3 KEY BOARD UNIT

● **Circuit Diagram**

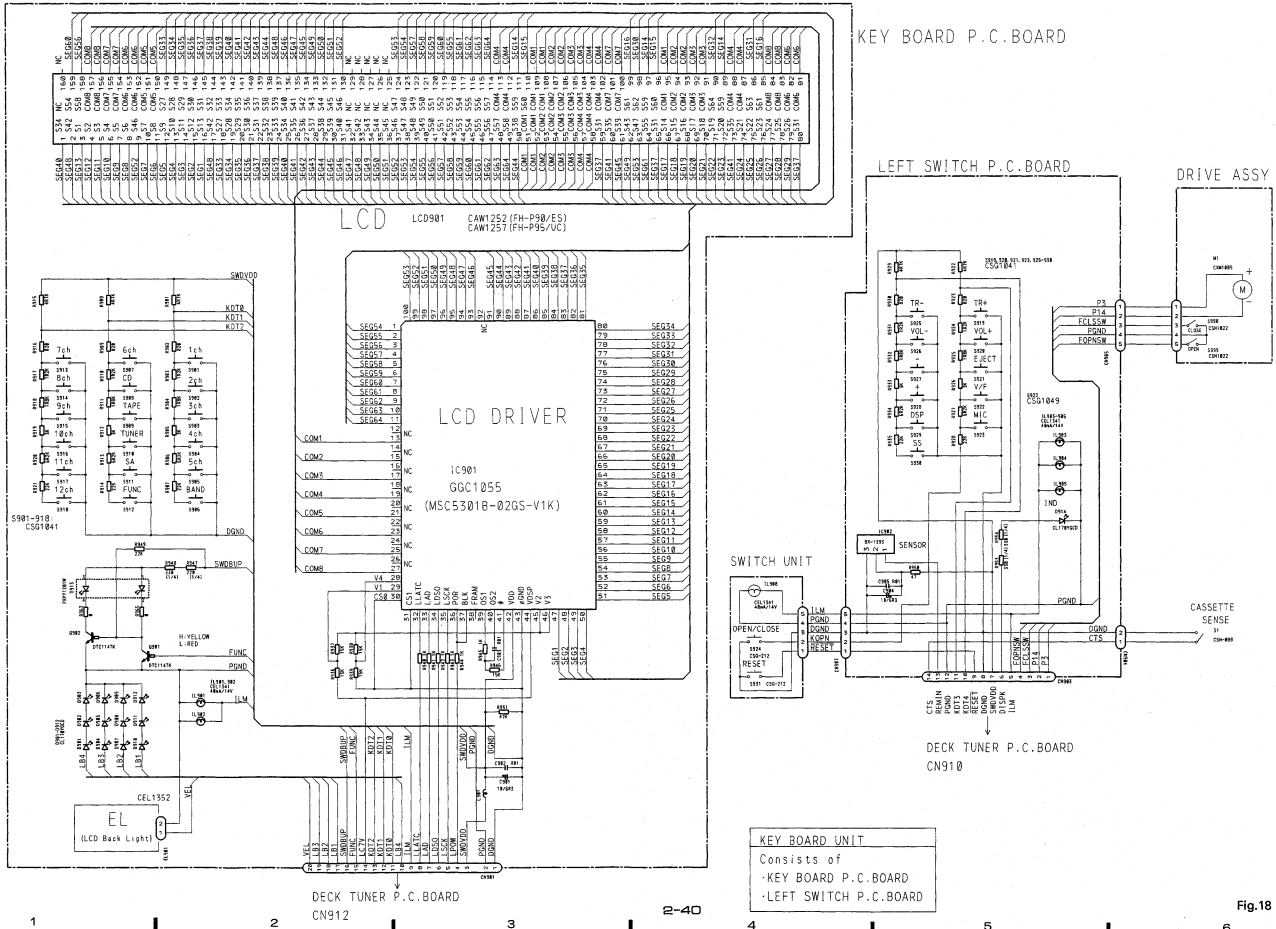


Fig.18

PION-05113 / Druck 12

● **Connection Diagram**

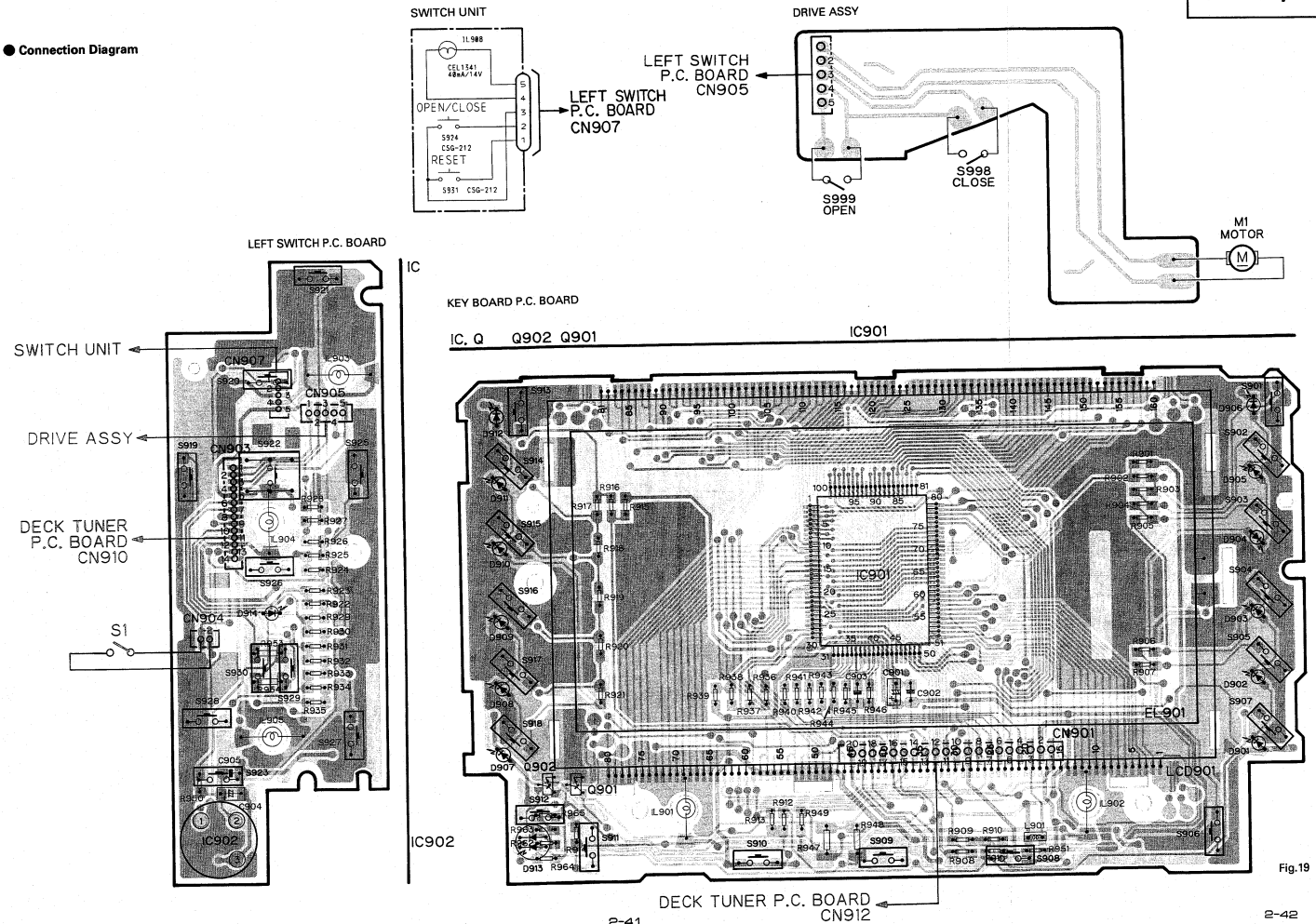


Fig.19

7.4 TUNER UNIT

● **Circuit Diagram**

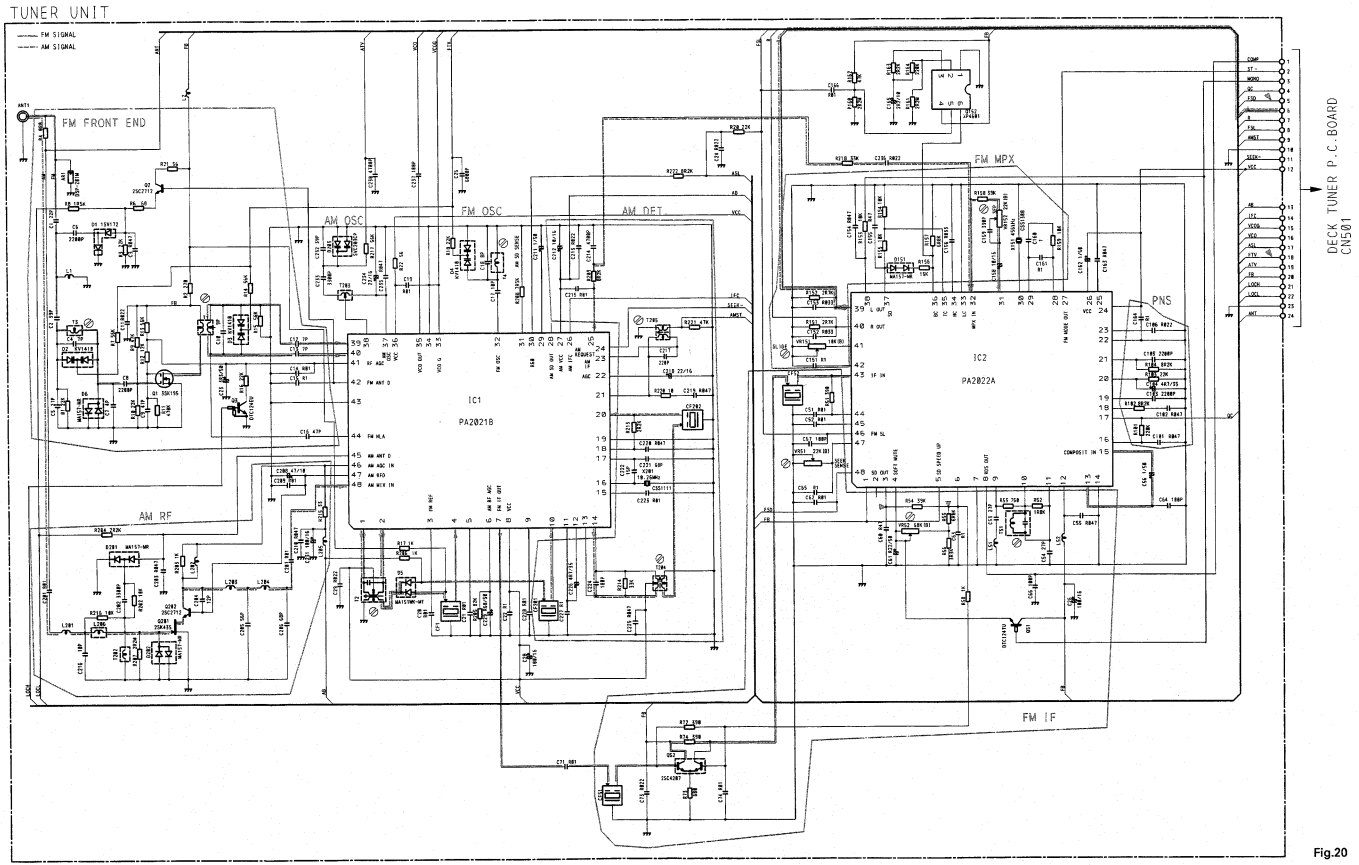


Fig.20

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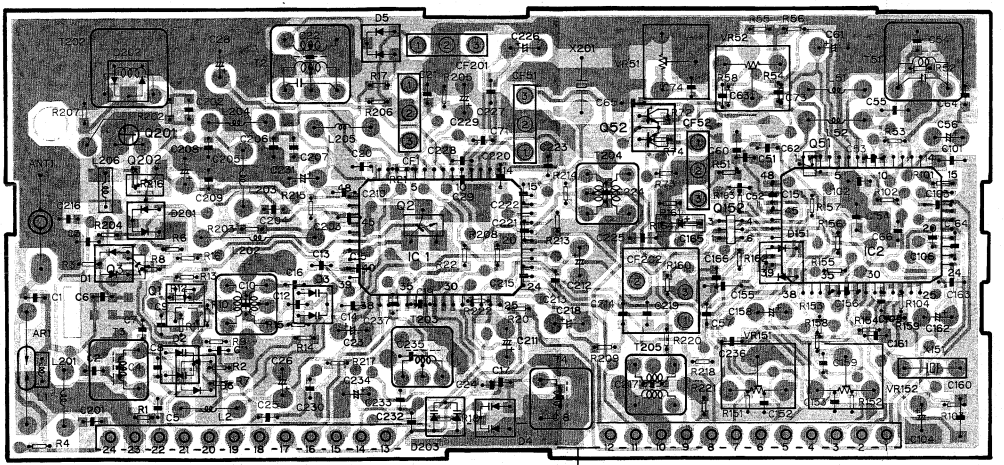
● **Connection Diagram**

TUNER UNIT

IC, Q	Q201	Q3	Q202	Q1			Q2	IC1				Q52	Q152	Q51	IC2	
ADJ	T202	T3		T1	T2		T203		T4	T204	T205	VR51	VR52	VR151	VR152	T51



DECK TUNER P.C. BOARD
CN501

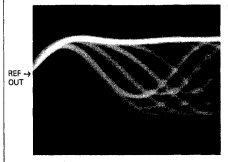
Fig.21

● Wave Forms(CD Mechanism Module)

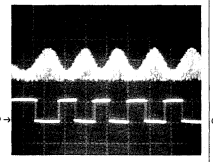
Note: 1. The encircled numbers denote measuring pointes in the circuit diagram.
2. Reference voltage
REFOUT: 2.5V

A

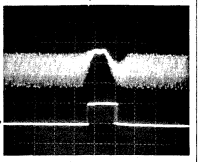
① RFO 0.5V/div. 0.2μs/div.
Normal mode: play



① CH1: RFO 1V/div.
② CH2: MIRR 5V/div. 0.5ms/div.
Test mode: Tracking open

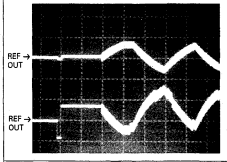


① CH1: RFO 1V/div.
② CH2: MIRR 5V/div. 0.5ms/div.
Normal mode: The defect part passes 800μm.

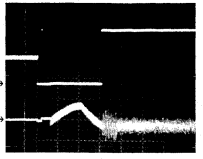


B

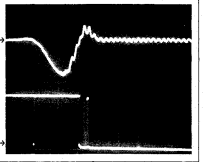
③ CH1: FIN 1V/div.
④ CH2: FO 2V/div. 0.5s/div.
Test mode: Connect the FEX to REFOUT.
Focus search is performed.



⑤ CH1: FOK 2V/div.
③ CH2: FIN 1V/div. 0.5s/div.
Normal mode: Focus close

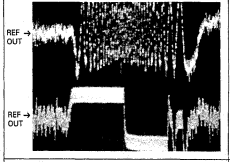


⑥ CH1: FEY 1V/div.
⑦ CH2: XSO 2V/div. 2ms/div.
Normal mode: Focus close
(The lens moves DOWN → UP)

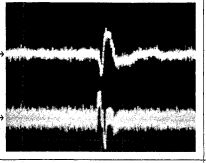


C

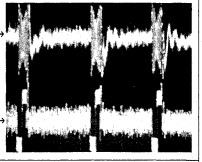
⑧ CH1: TEY 0.5V/div.
⑨ CH2: TIN 0.5V/div. 0.5ms/div.
Normal mode: Brake wave from when track search is performed.



⑧ CH1: TEY 1V/div.
⑨ CH2: TIN 0.5V/div. 1ms/div.
Normal mode: single jump

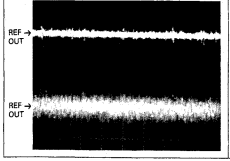


⑧ CH1: TEY 0.5V/div.
⑨ CH2: TIN 0.5V/div. 5ms/div.
Normal mode: Track search (32 track jump)

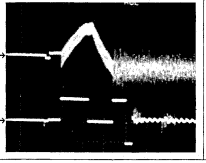


D

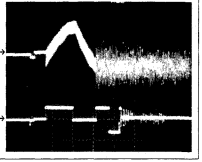
⑥ CH1: FEY 0.2V/div.
③ CH2: FIN 0.5V/div. 20ms/div.
Normal mode: Play



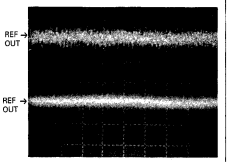
③ CH1: FIN 0.5V/div.
⑩ CH2: SIN 1V/div. 0.5s/div.
Normal mode: Focus search (12cm disc)



③ CH1: FIN 0.5V/div.
⑩ CH2: SIN 1V/div. 0.5s/div.
Normal mode: Focus search (8cm disc)

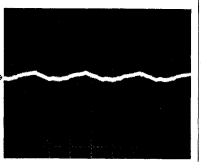


⑧ CH1: TEY 0.5V/div.
⑨ CH2: TIN 0.5V/div. 20ms/div.
Normal mode: Play

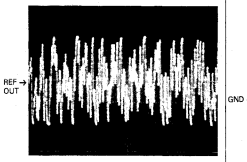


⑧ CH1: TEY 1V/div. 5ms/div.
㉓ CH2: CIN
Normal mode: Search

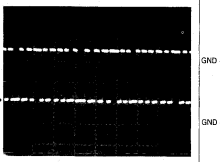
⑩ SIN 0.5V/div. 50ms/div.
Normal mode: Play (12cm disc)



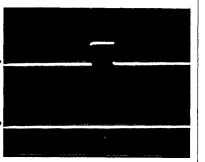
⑩ SIN 0.5V/div. 10ms/div.
Search (12cm disc)



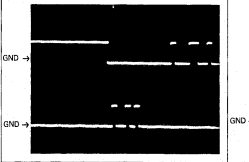
⑪ EFM 2V/div. 5μs/div.
Play



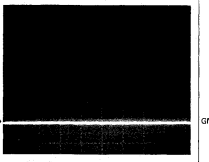
⑫ CH1: MDF 5V/div.
⑬ CH2: MDR 5V/div. 2ms/div.
Play



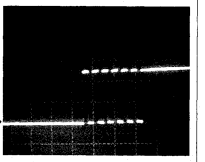
⑫ CH1: MDF 5V/div.
⑬ CH2: MDR 5V/div. 10ms/div.
Search



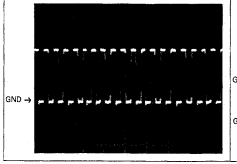
⑭ FLAG 2V/div. 0.1ms/div.
Play



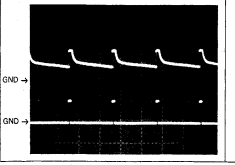
⑭ FLAG 2V/div. 0.1ms/div.
Search



⑮ PLCK 2V/div. 0.5μs/div.
Play



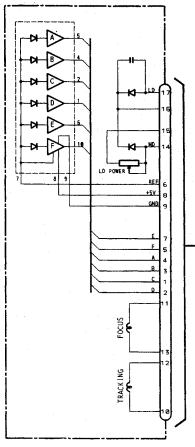
⑲ CH1: VM 5V/div.
⑳ CH2: VMC 5V/div. 50ms/div.
Normal mode: No disc



7.5 CD MECHANISM MODULE

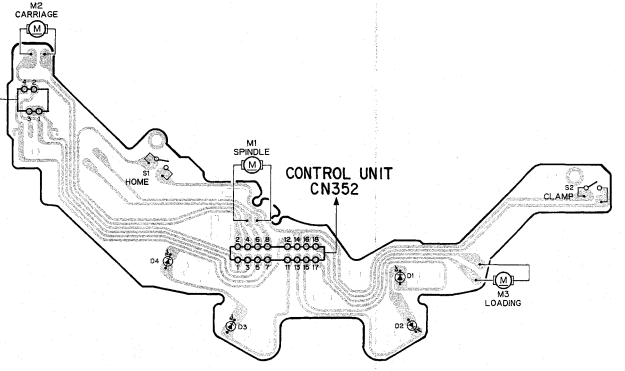
● **Connection Diagram**

PU UNIT

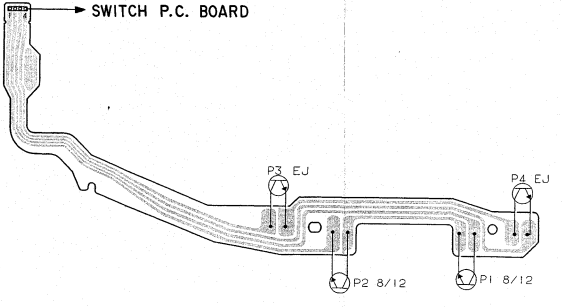


CONTROL UNIT
CN351

SWITCH P.C. BOARD



DETECTOR P.C. BOARD



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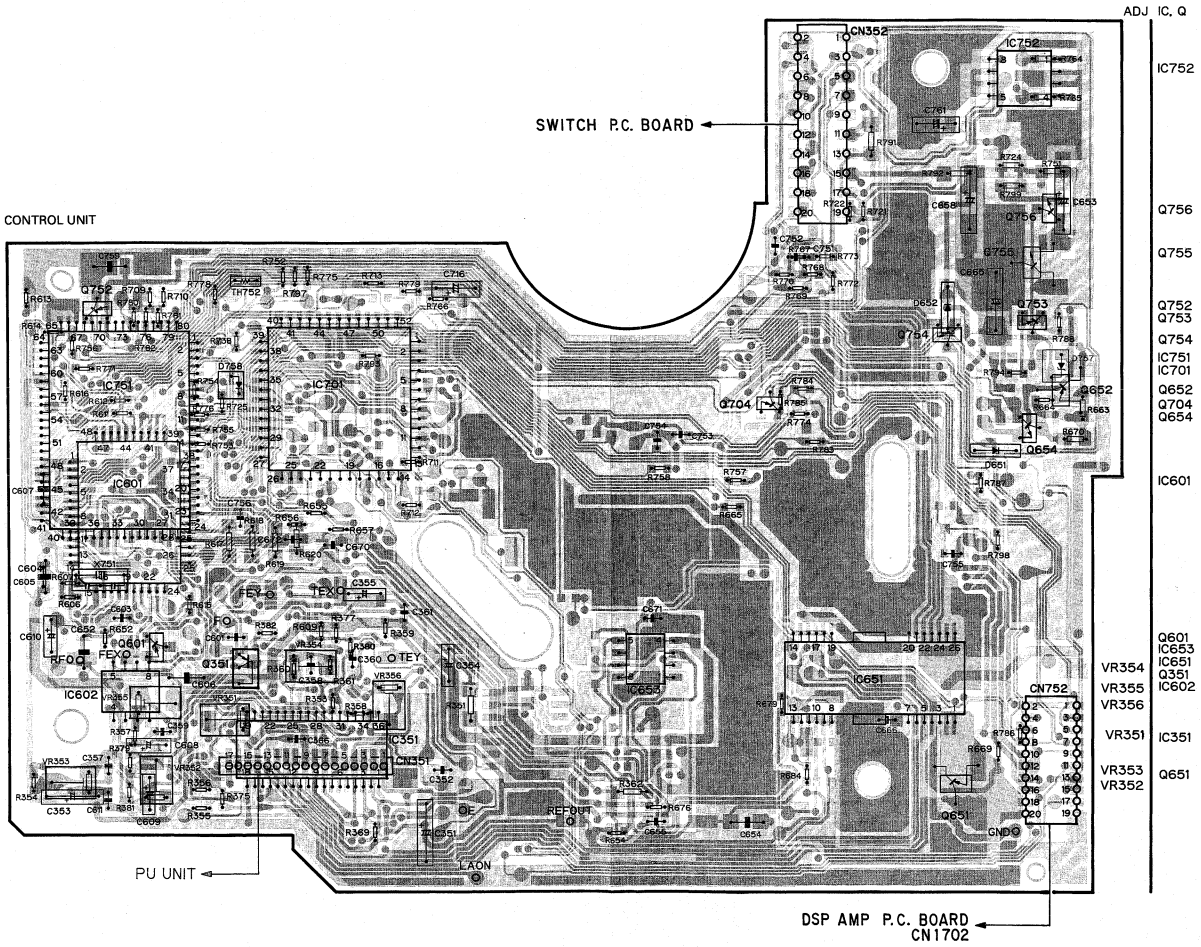
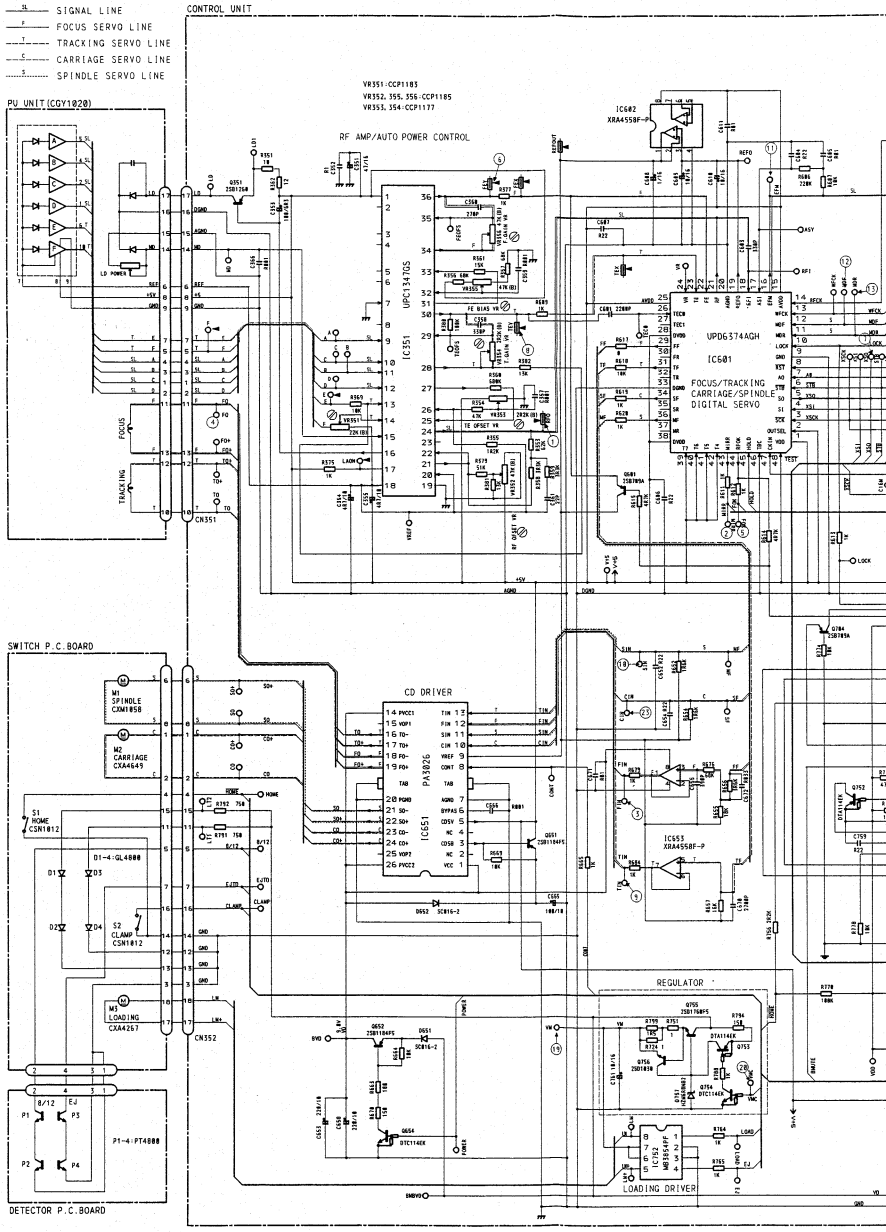

ADJ IC, Q
SWITCH P.C. BOARD
CONTROL UNIT
IC752
Q756
Q755
Q752
Q753
Q754
IC751
IC701
Q652
Q704
Q654
IC601
Q601
IC653
IC651
Q351
IC602
VR354
VR355
VR356
VR351
IC351
VR353
VR352
Q651
CN352
CN752
CN351
IC601
IC751
IC602
IC351
IC651
Q704
Q654
Q651
Q601
Q351
FEO
TEO
RFO
FEXO
TEXO
OTEY
REFOUT
LAON
GND
PU UNIT
DSP AMP P.C. BOARD
CN1702

Fig.22

● Circuit Diagram



SWITCHES:
MISCELLANEOUS
S1:HOME SWITCH ····· ON-OFF
S2:CLAMP SWITCH ····· ON-OFF
The underlined indicates the switch position.

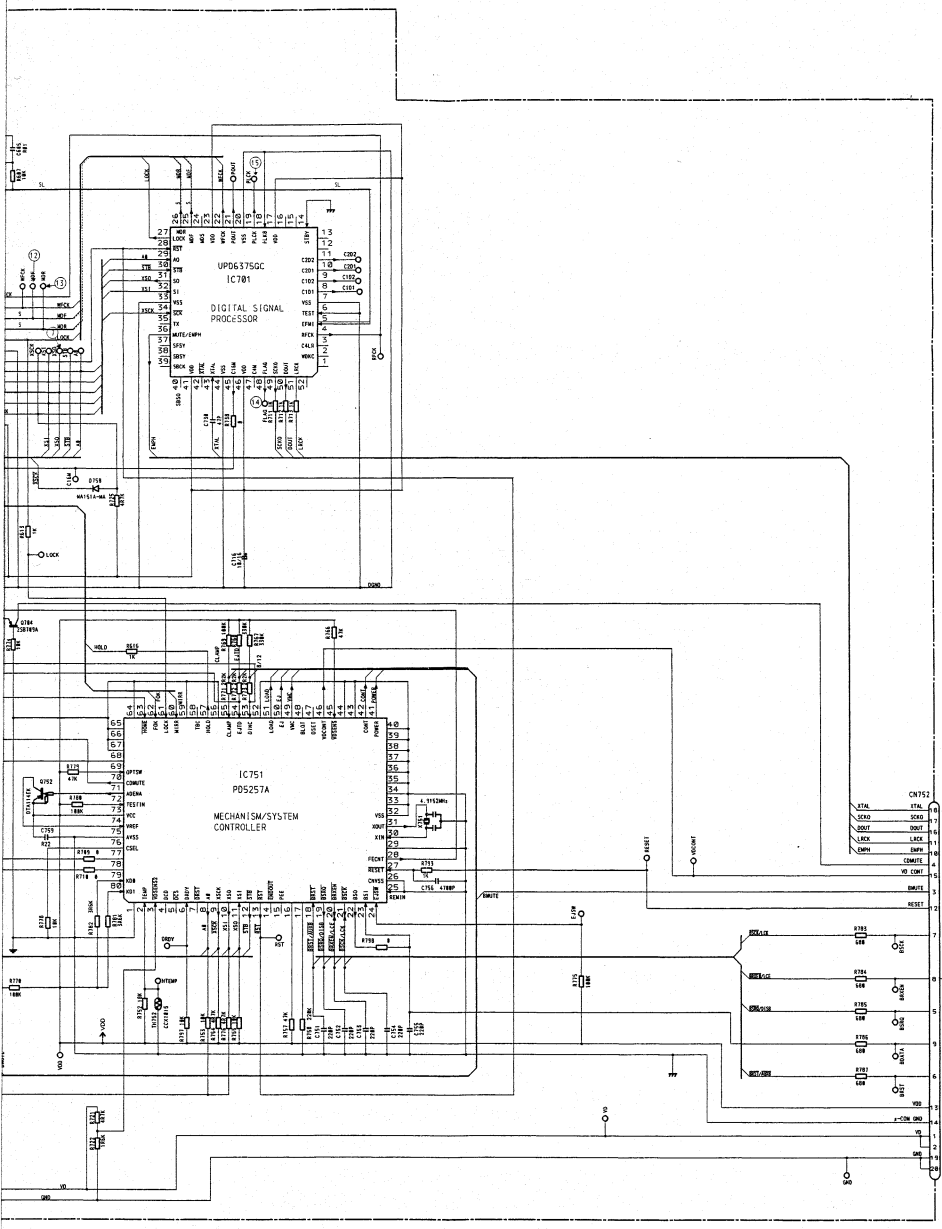
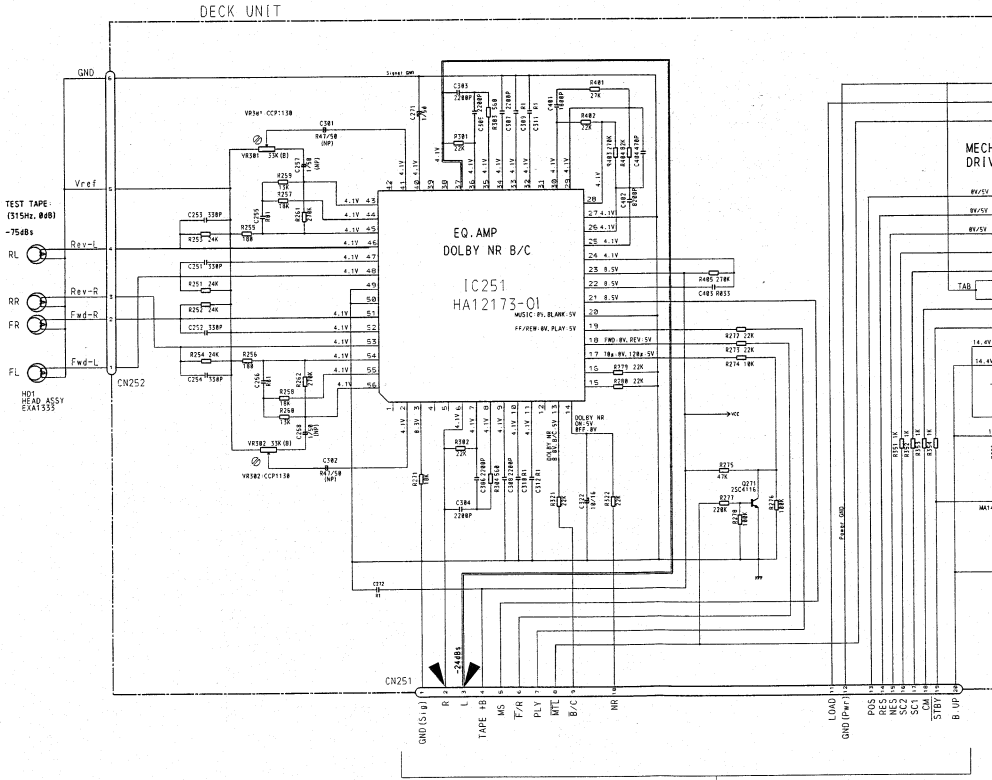

UPD6375GC
IC701
DIGITAL SIGNAL
PROCESSOR
IC751
PD5257A
MECHANISM/SYSTEM
CONTROLLER
CN752
DSP AMP P.C.BOARD
CN1702

Fig.23

7.6 CASSETTE MECHANISM MODULE

● **Circuit Diagram**



● **Connection Diagram**

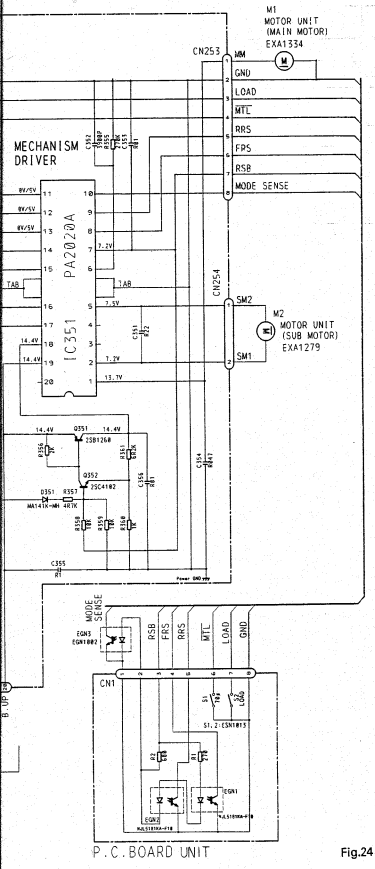
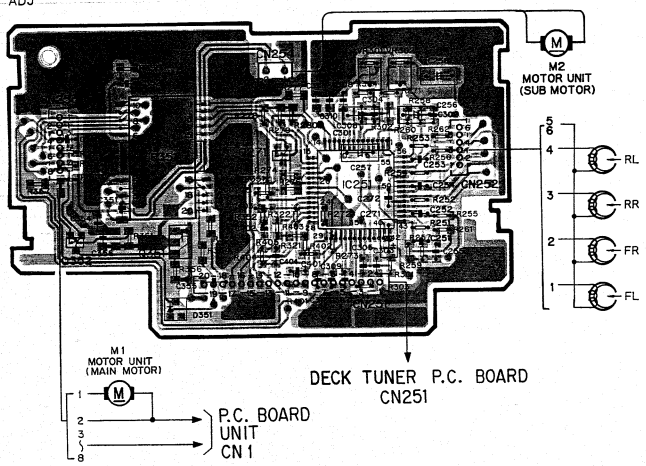


Fig.24

DECK UNIT

IC, Q Q352 IC351 Q351 Q271 IC251

ADJ VR301 VR302



P.C.BOARD UNIT

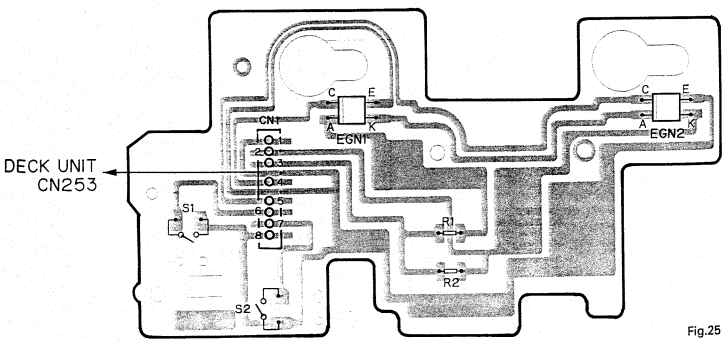


Fig.25

● **FH-P90/ES**

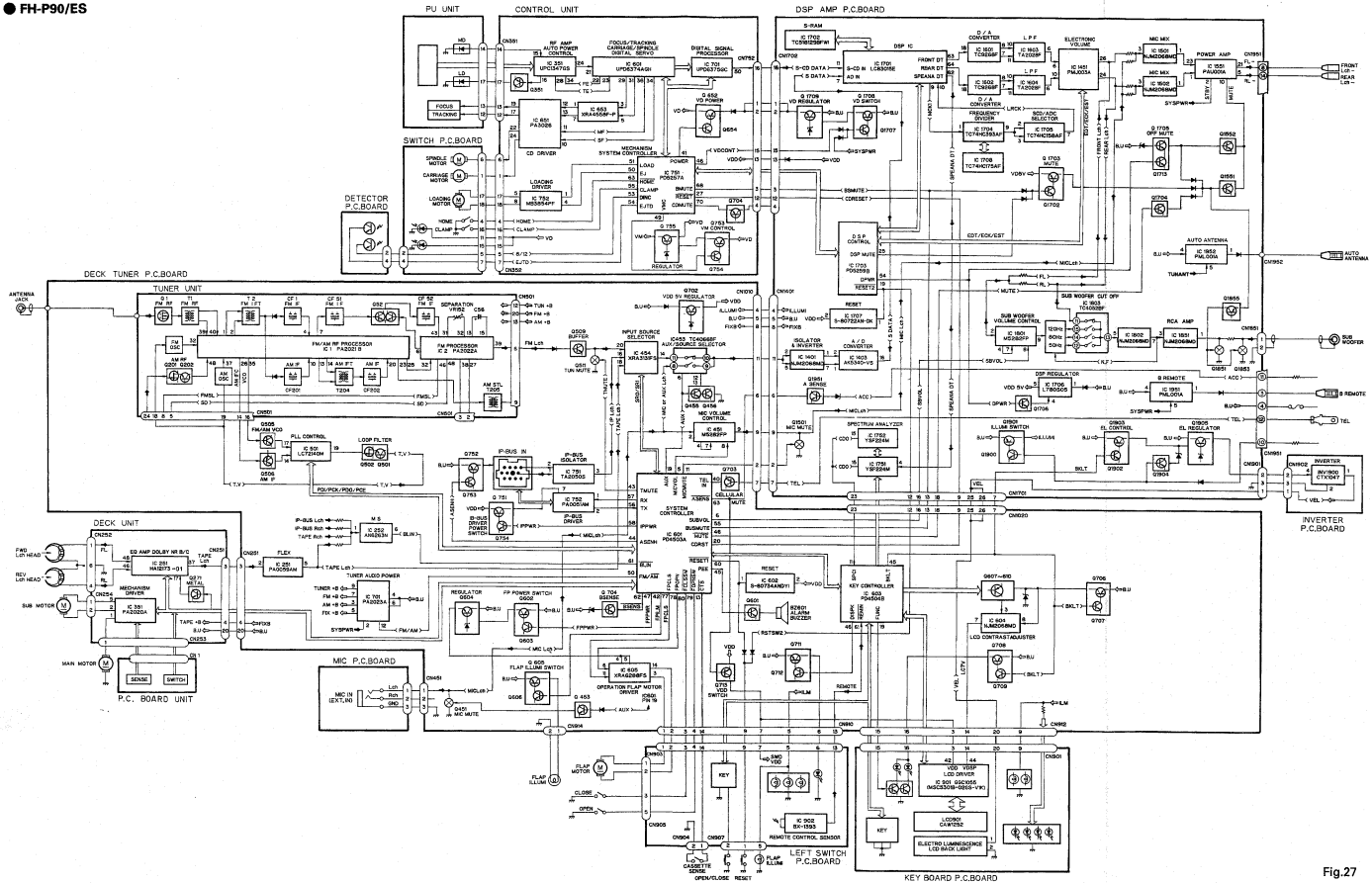


Fig.27

8. BLOCK DIAGRAM

● **FH-P95/UC**

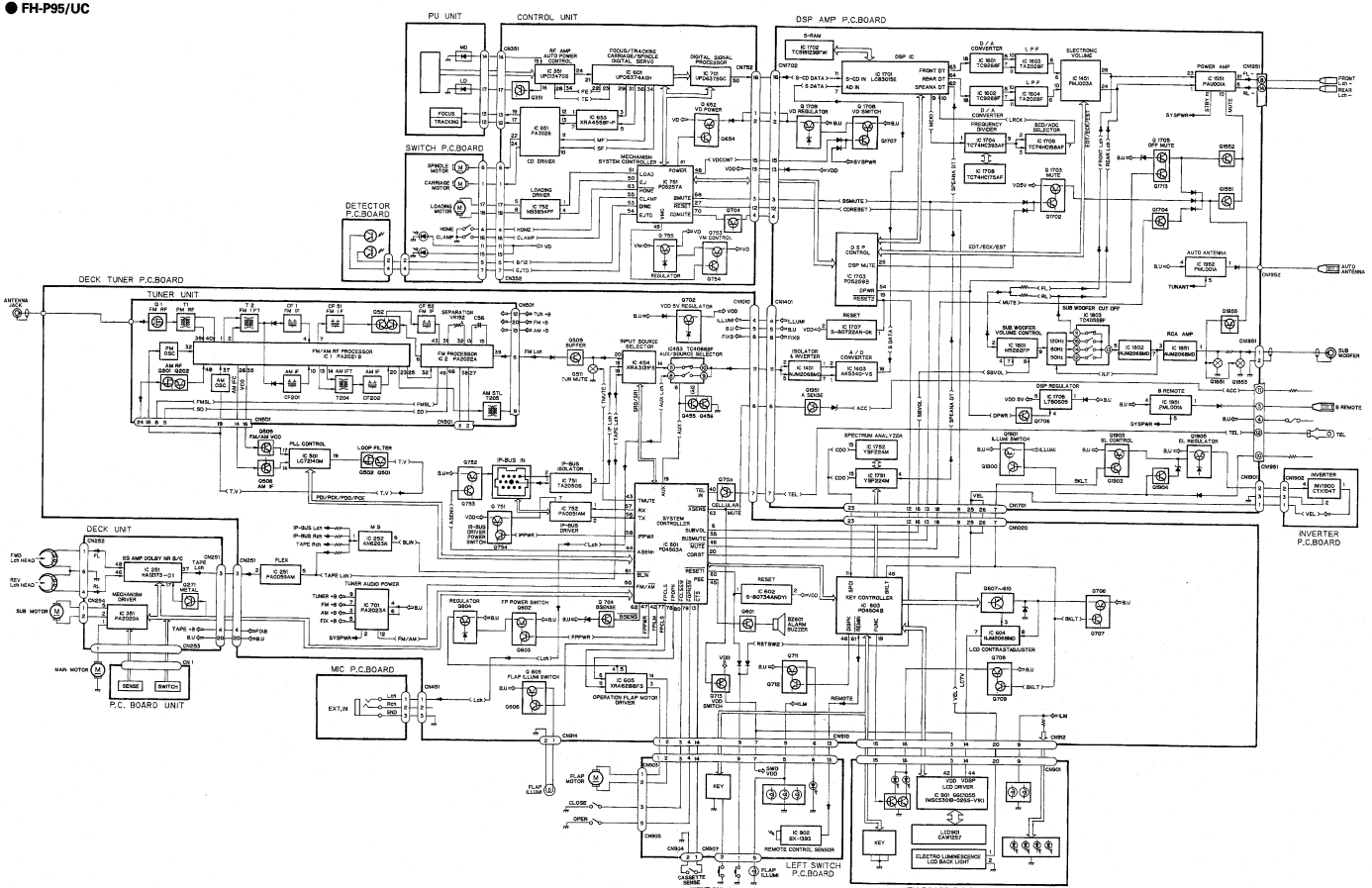


Fig.26